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Many of our subscribers and readers have, we are sure, had experiences in mining and milling, some record of which would be of great interest and value to others. Many have made experiments in different directions, and others have met and overcome difficulties in practice, some account of which would help others in like cases, and give them practical aid. Such readers would do great service to us and to their fellow workers by sending us from time to time some notes of their experience. They would be welcome, however brief, and, we are sure, would be read and appreciated by many. We hope that our subscribers will bear these things in mind.

The extreme activity in the iron market and the great demand for iron and steel is being felt in various quarters, and among others by purchasers of mining machinery. Considerable delays have been caused in delivering machinery ordered by the difficulty in getting the iron and steel in time, and it is getting to be the rule in accepting orders to agree to fill them only at a date contingent upon the receipt of the raw material. Of course, this is one of the difficulties of a period of boom and activity like the present. The makers of mining machinery generally are busy, and are no exceptions to the general condition of activity reported everywhere.

The people who traded their old lamps for new ones with an eccentric merchant, and were immortalized for it in the "Arabian Nights," no doubt thought themselves sharp in their day and generation; but some modern bargains beat that. Some Eastern railroad companies last year contracted for new steel rails at $17 a ton at mill; the rails have been delivered, and laid, and in one case, at least, the old rails which they replaced have been sold at $26 to $28 a ton. It is not every day—nor every year—when a railroad company can thus get a premium on a new track which pays all cost of freight and relaying and leaves a neat profit besides; but this is an actual case. It is one of the humors of the iron market.

It is reported that negotiations are well advanced for the consolidation of several of the silver-lead mining companies in Northern Idaho into one company, which will control all—or nearly all—of the output of the Coeur d'Alenes. The consolidation, it is said, will be made under the organization of the Helena & Frisco Mining Company, and arrangements will be made for a most thorough and economical prosecution of work in the different mines included. Mr. N. B. Holter, of Helena, Montana, has taken a leading part in the negotiatoins, and it is understood that parties largely interested in the American Smelting and Refining Company are to be stockholders in the new consolidation. If completed, this consolidation will have a great influence on the conditions of mining in the Coeur d'Alenes and the settlement of the labor troubles there.

The total stoppage of the Witwatersrand gold mines, with the exception of one or two which are being operated under the direction of the Transvaal Government, is one of the first results of the war in South Africa. As all communication with Johannesburg is cut off for the present, it is impossible to say anything of the condition of the mines, but it does not appear so far that any damage has been done to them or is contemplated.

The diamond mines at Kimberley, which are on British territory, are one of the objective points of the Boer attack, and a large force is concentrated about the town. Should the place be captured, there is no doubt that great injury will be done to the mines and machinery. The prominence of Cecil Rhodes in connection with the DeBeers Company, and the special animosity of the Boers against him may result disastrously for that company in the case of a temporary Boer success.

The promoters are moving in full force on the Joplin zinc region. The first companies brought out, chiefly in Boston, to acquire mining properties in that region, were generally legitimate enterprises, based upon solid foundations, and the only serious criticism which could be made was that some of them were capitalized at too high a figure. They are being followed by a brood of doubtful enterprises which are building on the successes of the others, and are advertising widely in New England, where they hope to sell stock. One of the latest of these, which we find advertised in the Boston papers, is the Southwestern Mining and Reduction Company, with a capital of $5,000,000, which proposes to buy mineral lands and build smelters. Its property is chiefly in the future, but it is asking $7.50 for preferred and $5 for common stock, the par value of both being $10. Most of the names connected with this company are unknown, to us, but one of them is that of a man who is wanted in New York and Chicago, and has been con-

nected with more than one notorious mining fake. We refer to Theodore Stegner, who was the originator of the Senator Mining and Milling Company, which many New Yorkers have occasion to remember. A concern under his direction is a good one to avoid. Apart from this the advertisement of this company is suspicious, and close investigation is called for.

The Commonwealth Zinc Company and the Congdon Zinc Mines Company are both extensively advertised at Boston, and are also, we are advised, good things to leave alone.

The British blast furnaces, like our own, are making great efforts to meet the demands upon them for iron. According to the reports of the British Iron Trade Association, there were 405 furnaces in blast at the close of September, and this number included nearly or quite all the stacks in condition to make iron at all. Taking the reported capacity of the furnaces, the estimated output for the third quarter of the year was 2,390,310 long tons of pig iron; and for the second half of the year the total will be at least 4,800,000 tons. This means that the total British output for 1899 will be somewhat in excess of 9,000,000 tons, the largest ever made. In Germany also the blast furnaces are being pushed to their full capacity, and a production greater than that of any previous year—certainly over 8,000,000 metric tons—is assured. There is no doubt that the output of the three great iron-making countries—the United States, Great Britain and Germany—for the current year will be between 31,500,000 and 32,000,000 metric tons. In 1898 the total for the three was 28,134,383 metric tons. Notwithstanding this enormous production, there has been no time in recent years when stocks of iron on hand were so small. In fact, the producers have hard work to keep up with their contracts and satisfy the demands of their customers.

In Germany especially, the makers of steel and finished irons are making complaints that they cannot get raw material fast enough. The different district syndicates or associations, which control the trade very closely in that country, have removed all restrictions on output, and the furnaces are not only permitted, but encouraged, to make all the iron they can. Iron ore supplies are generally sufficient, and the limitation now is in the supplies of coke, which have been increased much more slowly than iron-makers would like to see them. The district coke syndicates, which control production quite as closely as the iron associations, seem to be more anxious to secure higher prices than to meet the demand by enlarging their output. Germany is having an opportunity to appreciate thoroughly the disadvantages of the close syndicate system.

The latest figures accessible as to the cost of anthracite coal are found in the report of the Philadelphia & Reading Company for the year ending June 30th last. They are not complete in detail, but a close and careful analysis of such figures as are given enables us to give the following statement, showing the cost of mining and marketing the company's coal for the year:

	Total.	Per ton.
Cost of mining	$9,521,911	$1.33
Royalties	567,226	0.08
Taxes, repairs and miscellaneous	621,646	0.09
Colliery improvements	377,926	0.05
Taxes and fixed charges	478,697	0.07
Total cost at mines	$11,567,406	$1.62
Cost of coal purchased	2,365,649	1.98
Total cost of coal	$13,933,055	$1.67
Transportation by rail and water	$7,946,648	$0.95
Coal yards and depots	387,085	0.05
Commissions and selling expenses	954,012	0.11
Total cost of marketing	$9,287,745	$1.11
Costs of all kinds	$23,220,800	$2.78
Sales of coal	$23,219,103	$2.80
Rents and miscellaneous receipts	424,735	0.05
Total receipts	$23,643,838	$2.85

The coal purchased was bought from individual operators, largely from tenants working on the company's estate. It will be seen that the reported cost of this coal was considerably higher than that of the coal mined by the company itself. The rentals charged were not high, apparently, since the item of rents received averaged only 21.5 cents per ton of coal mined by tenants.

It will be seen that the cost of coal at the mines—including coal purchased—was 60.1 per cent. of the total; the cost of transportation was 34.2 per cent., or over one-third; while the remaining 5.7 per cent. is made up by the cost of selling. While it cost on an average $1.67 to mine and prepare a ton of coal, it took 95 cents to carry it to market, and 16 cents to sell it. The average selling price was only 2 cents above the total cost. Although this surplus was increased to 7 cents by the miscellaneous profits, the return must be considered a wholly inadequate one.

MINING STOCK INVESTMENTS.

In a time like the present when money is abundant and there is general prosperity, it is quite natural that mining investments should attract general attention. Notwithstanding the enormous amount of capital which has been absorbed during the past year by the industrial organizations—the so-called trusts and combinations—there is a large surplus seeking investments which will return a fair interest, and these are not always easy to find. In such a time also there are always plenty of promoters of doubtful honesty who are ready to take advantage of market conditions and spread all sorts of traps for the unwary and inexperienced. The capitalist who controls large amounts of money is usually well able to look out for himself; it is the small investor who seeks some place for his moderate surplus who chiefly needs caution and advice. The amounts controlled by this class, while small individually, make up a very large sum in the aggregate; and it is to this class also that the promise of large dividends appeals with especial force.

We do not, in this country, invest largely in foreign mines, as is done in England. It is not necessary, in fact, since the resources of our country are so great and varied that there are opportunities at home for the use of all our available capital; and it will be a long time before this condition ceases to exist. New discoveries are constantly being made, and there are plenty of prospects whose exploitation gives reasonable promise of profit.

We are in constant receipt of letters asking for advice in relation to mining stocks and investments; the number and variety of these showing how widespread is the present interest in mining. Some of these refer to legitimate enterprises; others, we are sorry to say, show that the fake promoters are getting a wide hearing and finding many ready to pay attention to their glowing advertisements and circulars. It is impossible for us, as we have heretofore explained, to give advice in individual cases. To do so properly would reuire an extent of investigation and expert examination which we could not undertake. Our constant endeavor is to present the news of the different mining regions as completely as possible, and through our numerous correspondents to give the facts in relation to present operations and results, as well as all possible guides to future prospects. We have also in the past—and we propose to continue this in the future—taken pains to expose and call attention to attempts to impose upon the public by misrepresentation, by the promotion of unworthy schemes and the flotation of valueless properties.

Legitimate mining investments may be divided into two general classes, the purchase of stock in developed and paying mines, and the taking of shares in new enterprises still largely to be developed. The first class, of course, appeals to those who need an immediate return on their capital, and as a rule this will be only a moderate one, since the stocks of well-known dividend-paying mines naturally command high prices. The second class offers many opportunities to those who can afford to run a certain risk in view of the chances of large profits which such investments offer. It is in this class, of course, that caution is to be exercised, and here the dishonest promoter finds his chief opportunity.

There are certain points which long experience with promoters and prospectuses enables one to detect at once as evidences of honesty—or otherwise. The most common fraud in such documents is to represent a claim or a prospect, which may or may not have value, as an established mine. In these cases it is often difficult to detect the misrepresentation without some personal knowledge of the district, which the average buyer of stock seldom possesses. It is usually safe, however, to distrust a prospectus which deals entirely in generalities, or which bases its claims to the value of a property on the neighborhood of some well-known mine. An array of prominent names in the directory is not always a safeguard, as the stockholders of the Rev. Mr. Jernegan's Electrolytic Marine Salts Company or the Joseph Ladue Gold Mining Company could tell us. The name of a well-known and reliable expert is of value; but it is to be noticed that a prospectus in which such a name appears is usually much more moderate in its claims than those which are based on doubtful properties. The man who writes a fake prospectus has a certain advantage over the author of an honest one, since he is not limited by any attention to facts which might be embarrassing. Generally it is the more modest prospectus which deserves attention.

The investor who proposes to put money into a company should insist upon the fullest confidence. Plain statements of facts and of actual conditions are always in order, and command confidence, though they may be, at first sight, less attractive than "glittering generalities" and vague promises. While it is difficult to lay down any general rules, these two—the full explanation of facts and the authority of responsible experts—are features which always deserve attention.

This rule of full confidence in the stockholder applies to old as well as new companies. The investor should beware of all concerns in which the management thinks secrecy necessary. They are always liable to

unpleasant surprises; and it is not good business to hold stock in a "blind pool," the value of which is necessarily at the mercy of the managers.

NEW PUBLICATIONS.

"A Primer of Forestry: Part I. The Forest." Being Bulletin No. 24 of the Division of Forestry, United States Department of Agriculture. By Gifford Pinchot. Washington; Government Printing Office. Pages, 88; illustrated.

The Division of Forestry deserves a great deal of credit for the work it has done in introducing to the people some knowledge of and interest in forestry; an art too little known in this country and far too much neglected. No civilized and industrial nation in the world so recklessly wastes and destroys its forest resources as our own, and in none has there been such general neglect of any intelligent provisions for preserving and restoring the forests, the full value of which we do not recognize until they have disappeared. The first settlers in America had to clear and subdue a heavily wooded region, and their experience seems to have been planted in their descendents a disposition to destroy trees which not even the hard experience of many on the treeless prairies of the West has eradicated. We are only now beginning to appreciate the real values and importance of the forest, and to understand that trees must be regarded as a crop—in many cases, a most valuable one—to be cared for like any other agricultural product. Mr. Pinchot's "Primer" is an excellent introduction to the science and art of forestry; the present part deals with the units which compose the forest, with its character as an organic whole, and with its enemies. It sketches the foundations of the practice of forestry and of forest policy. It is written in a clear and interesting way, and anyone in the least interested in the subject can read it to advantage. If we are not mistaken, almost everyone who reads it will want to go on and learn more of the subject. The book is well illustrated and ought to be widely circulated and read.

BOOKS RECEIVED.

In sending books for notice, will publishers, for their own sake and for that of book buyers, give the retail price? These notices do not supersede review on another page of the Journal.

"India and the Monetary Crisis." By John H. Twigg. Woking, England; The Oriental University Institute. Pamphlet, pages 10.

"Year-Book of the United States Department of Agriculture; 1898." Washington; Government Printing Office. Pages, 768; illustrated.

"Ueber die Regionalen Veraenderungen der Goldlagerstaetten." Von Emil Ernst Lungwitz. Leipzig, Germany; B. G. Teubner. Pamphlet, pages 30.

"Report on the Inspection of Mines in India, for the year 1898." By James Grundy, Inspector of Mines. Calcutta; Government Printing Office. Pages, 60.

"A Treatise on Masonry Construction." Ninth Edition, revised and partially rewritten. By Ira O. Baker. New York; John Wiley & Sons. Pages, 556; illustrated. Price, $5.

"Transactions of the American Institute of Mining Engineers." Volume XXVIII., February, 1898, to October, 1898, inclusive. New York; published by the Institute. Pages, 948; illustrated.

Geological Survey of Canada: "Report on the Geology of the Seine River and Lake Shebandowen Areas." By William McInnes. Ottawa; Dominion Printers. Pages, 66; with map. Price, 20 cents.

"The Mining Law of the Netherlands East Indies: Official Gazette No. 124." Translated into English by W. R. Bisschop and Frank Merricks. Amsterdam, Holland; J. H. de Bussey, and London; Effingham Wilson. Pamphlet, pages, 32. Price (in New York), 35 cents.

CORRESPONDENCE.

We invite correspondence upon matters of interest to the industries of mining and metallurgy. Communications should invariably be accompanied with the name and address of the writer. Initials will only be published when so requested.

Letters should be addressed to the MANAGING EDITOR.

We do not hold ourselves responsible for the opinions expressed by correspondents.

The Pothook Mine at Kamloops, B. C.

Sir: Until a couple of years ago Kamloops, British Columbia, was not thought to possess mineral wealth. It had long been known that copper-stained rock was to be found over an extensive area. No one dreamed, though, that paying ore was at the very door of the city. When this fact was once realized there was a stampede to the hills and hundreds of claims were rapidly staked and recorded. The claims begin almost at the city limits, and those that are more distant are readily reached by the excellent roads that traverse the camp. Work has been done on a large number of claims with gratifying results. The Pothook Group, which contains four claims and five fractions, was located in the spring of 1897 by Messrs. R. H. Lyons, George McDonald and F. Kelly. It is situated on the plateau at the foot of the west slope of Sugar Loaf Mountain and about 7 miles southwest of Kamloops. In November, 1897, the group was taken up under working bond by Mr. Henry Croft of Victoria, and development work was commenced under the superintendency of Mr. H. G. Ashby. A series of big surface cuts were run on the property and trial shafts sunk which proved the presence of a very large vein, composed of a rather soft schistose vein-stuff, resembling chiefly a very much altered diorite, but containing less silica and some talc, lying between a footwall of fine granitoid rock and a hanging wall of diorite. The vein-stuff was heavily copper-stained and was interspersed irregularly with native copper and copper glance. This series of crosscuts aggregate in length 560 ft., showing up the vein for a distance of over 5,000 ft., with a width of over 350 ft. A double compartment shaft was commenced on the Pothook about January 1st, 1898, and sinking and cross-cutting has progressed continuously since. A horse whim was installed in May, 1898, and in the fall of that year the property passed into the hands of the present owners—the Scottish Copper Mines Syndicate of British Columbia—with Mr. H. Croft as local director, Mr. Ashby continuing as superintendent of the mine. The new owners then erected a shaft house, 36 by 40 ft.; blacksmith shop, 16 by 24 ft.; cook house, 20 by 28 ft.; bunk house, 16 by 32 ft.; manager's office, 18 by 20 ft.; cottage, 16 by 24 ft.; and large stables and barns, power house, etc. In the shaft house is a 6-H.-P. gasoline hoisting engine, and a fan for ventilation which draws up the air from the levels through a 10-in. galvanized iron pipe. The shaft, which is double-compartment and well timbered, is down 335 ft. and four levels have been driven from it, cross-cutting the vein. The first crosscut, the A level, was commenced at a depth of 80 ft. This was driven 39 ft. to the south and 24 ft. to the north. The whole 60 ft. carried a fine distribution of native copper, averaging from 1 to 1.5 per cent., with an irregular mass of 3 ft. of glance, yielding all through 18 per cent. copper. The B level was commenced at a depth of 150 ft. and has been driven 243 ft. to the south and 214 ft. to the north; the showings in this cross-cut are a great improvement on the A level, the ore in this level running about 7 per cent. copper and $3 in gold and silver. Several bands of rich native copper and bornite were encountered in this drift. At a depth of 250 ft. the C level has been run 230 ft.; 25 ft. from the shaft a band of 4 ft. carrying copper pyrites was met; at 80 ft. a 12-ft. band carrying veins of bornite, native copper and some copper glance; at 227 ft. the same quartzite that was noticed on the B level was met and was much wider. The face of the drift is still in the quartzite, which carries a good amount of copper pyrites, 27 ft. of this assaying 4 per cent. copper and $3.50 in gold and silver. The D level, which is at the depth of 325 ft., is only in 85 ft. and carries the same characteristics as the upper levels. On the dump at the mine there are now from 800 to 1,000 tons of low-grade ore, carrying 1.5 to 2 per cent. native copper, with a small proportion of copper pyrites and copper glance, and carrying values of $3 per ton in gold and silver; also from 30 to 35 tons of picked high-grade ore. The low-grade ore is practically a run-of-mine ore, chiefly from the upper levels. The material from the lower levels is considerably higher in copper than the average of the dump; but taking this average for our basis of calculation, we shall see that this immense mass of low-grade ore is sufficiently valuable to yield a good profit when concentrated. The probable concentrating ratio of this ore is 10 to 1, which will give concentrates worth $40 per ton in copper and $30 per ton in gold and silver. The ease with which this ore can be mined and crushed reduces the costs of mining and concentrating to a very low figure. It is estimated that $2.50 per ton will cover all mining expenses, but allowing $3, each ton of concentrates will cost $30 per ton. Freight and smelter treatment costs at present $12.50 per ton, leaving a balance of $27.50 profit per ton of concentrates. No allowance has been made for the irregular lenticular bodies of high-grade ore which are evidently distributed through the mass of the vein. A complete new plant for the mine has been ordered from a San Francisco firm and will be in position by the middle of October. This plant will consist of a 50-H.-P. hoisting engine, a 60-H.-P. air compressor and 6 machine drills. As soon as it is installed the force of men will be doubled and the mine worked to its full limit. A site for the concentration works has been selected at the Thompson River, 2 miles north, and a tramway is being built to carry the ore from the mine to the works. The management expects to have the concentrator in operation early next spring.

J. T. Robinson.

Kamloops, B. C., Oct. 2, 1899.

THE DETERMINATION OF NICKEL IN NICKEL-STEEL.*

By Geo. Wm. Sargent.

The results obtained in the laboratory of the Carpenter Steel Company by the following method have been such as to warrant placing it before fellow-chemists, who, I believe, will find the method more reliable and more pleasant to work than most procedures now in vogue for the determination of nickel in steel.

The method in detail is as follows: Dissolve two grams of the steel in hydrochloric acid (1.1 sp. gr.), add 1 c.c. of strong nitric acid to oxidize the iron, and evaporate to hard dryness. Take up the residue in 20 c.c. hydrochloric acid (1.1 sp. gr.), evaporate to 10 c.c. volume, and transfer the solution to a 250 c.c. separatory funnel. Use warm hydrochloric acid (1.1 sp. gr.) for washing the contents of the beaker into the funnel, taking care to keep the volume as small as possible. Cool the funnel and its contents under the spigot, then introduce 40 c.c. of ether free from alcohol, which has just been thoroughly shaken with 5 c.c. of strong hydrochloric acid, and shake vigorously for 10 minutes, keeping the temperature from rising by frequently holding the funnel under the running water. Allow the funnel to stand a few minutes, draw off the lower aqueous layer containing the nickel, copper, manganese and other chlorides not held by the ether, wash down the sides of the separatory funnel with hydrochloric acid (1.1 sp. gr.), shake with the ether, and run the washings into the beaker with the chlorides of nickel, copper, etc. Two washings with 5 to 10 c.c. of hydrochloric acid are sufficient to completely remove the nickel and other chlorides from the funnel. The ethereal solution containing the ferric chloride is run into a residue bottle and later the ether recovered by distillation. Boil the liquid containing the nickel to completely expel the ether, and add to the boiling solution, diluted to at least 200 c.c., an excess of am-

*Abstract of article in "Journal of the American Chemical Society," October, 1899.

monia and 10 to 20 drops of bromine water, to precipitate any iron or manganese. Filter, wash, re-dissolve in hydrochloric acid, precipitate with ammonia and bromine water, and filter. Combine the filtrates, boil, remove and precipitate, acidulate with hydrochloric acid, boil until the excess of bromine has been expelled, and precipitate the copper as sulphide. The filtrate from the copper sulphide which contains nickel only is evaporated to a volume of 100 c.c., cooled, and 1 c.c. excess of ammonia added. Now introduce into the nickel solution, which is best contained in an Erlenmeyer flask, 5 c.c. of silver nitrate (0.5 gram silver nitrate in 1 liter of water), and the same amount of a 2 per cent. solution of potassium iodide. Run into the opalescent solution, which should have a temperature slightly lower than that of the hand, standard potassium cyanide (1 c.c. equal to about 0.001 gram of nickel) until the liquid becomes clear and bright. This titration is best made with a black background, when the end-reaction becomes very sharp and decided after a little practice, half a drop only being sufficient to discharge the opalescence.

The potassium cyanide is standardized by introducing into an Erlenmeyer flask 10 c.c. of a solution containing a known amount of recrystallized nickel nitrate, $Ni(No_2)_2$, $6\ H_2O$ 10 c.c. of hydrochloric acid (1.1 sp. gr.), 1 c.c. excess of ammonia, 5 c.c. each of the silver nitrate and potassium iodide, diluting the whole to 100 c.c., and running in the potassium cyanide until the solution clears. It is necessary that a blank be made upon the silver nitrate and potassium iodide used as the indicator, under the same conditions as the standardization, and this amount deducted from each titration.

The presence of varying quantities of ammonium chloride in the nickel solution to be titrated has no effect on the titration.

For the estimation of nickel in ferro-nickel, dissolve 20 grams of the sample in aqua regia, evaporate to hard dryness, take up with hydrochloric acid (1.1 sp. gr.), transfer to a liter flask, and dilute to the mark with water. Remove 50 c.c., to which add 5 c.c. strong hydrochloric acid, and concentrate to one-sixth its volume. Transfer to the separatory funnel, and proceed as with the steel.

A sample of ferro-nickel which, by an unknown method contained 33.93 per cent. of nickel, yielded 33.80, 34.00, 33.88, and 33.96 per cent. Another sample which, according to one chemist, contained 34.95 per cent. of nickel, gave 35.15 and 35.26 per cent.

The above-described method is a combination of a modified portion of the method of Chase, with a slightly changed part of the procedure given by Campbell and Andrews. In the course pursued by Chase, two ether separations are necessary to remove the ferric chloride, while the separation, as worked by us, need not be repeated; but little ferric chloride is left, and the two ammonia precipitations are sufficient to completely remove the iron from the nickel.

With regard to the titration with potassium cyanide, that may be accomplished in the presence of most all the salts of ammonium and the mixed alkalies except the nitrates. The excess of ammonia should not in any case exceed 3 c.c.

While in steels, about which one knows nothing, it will be necessary to hunt for copper, yet in the general run of furnace work, copper is absent, and knowing such to be the case, the working with the unpleasant gas, hydrogen sulphide, is done away with entirely. As far as time is concerned, the method is short, requiring no longer time than the method of Chase.

AN INTERESTING OCCURRENCE IN PROSPECTING FOR COPPER.

Written for the Engineering and Mining Journal by Wm. B. Phillips.

Having had occasion lately to prospect for copper in the Blue Ridge Mountains, I came across a very interesting and important phenomenon in connection with the displacement of seams due to surface sliding. The country rocks are the highly metamorphosed slates and schists of the Lower Silurian, striking approximately northeast and southwest, and dipping at angles varying from 40° to 50° southeast. Where the seam of ore was exposed it appeared at first sight to be in place, lying conformably to the walling, and having a thickness of 2 ft. Native copper was visible in thin sheets and shot, but malachite and cuprite formed the chief copper bearing constituents. A close examination of the locality convinced me that the seam was not in its true position, for large boulders on the surface below the outcrop showed the same kind of ore, but the hanging wall in the boulders was what appeared to be the foot wall of the seam. Again, just above the outcrop there was an immense rock which had evidently been broken away on its lower side, leaving a great shelf with over-hanging roof.

Three men were put to work with hand drills and dynamite to open the seam, and it was soon found that what had previously been considered the seam in its true position was nothing of the sort. The seam showed for about 8 ft. in length and on removing the loose rock it was seen that loose material was below the seam. A piece of ore weighing several hundred pounds was imbedded in fragments of rock and dirt. This was removed and thrown on the dump. The material below it was full of loose pieces of excellent ore for a depth of 10 ft. On enlarging the opening and working back toward the hanging wall other pieces of ore were found intermixed with dirt and barren rock. The pieces of ore were very firmly bedded, as if they had been laid in by a mason, but they all came out after some work with a crowbar. Finally we came to a large cavity running back into the hanging wall, and operations were suspended until a windlass could be erected and means provided for getting out the large rocks which interfered with the work. Adhering to the hanging wall was a seam of excellent ore, from 6 to 10 in. in thickness, showing native copper, cuprite and malachite, but it was from 5 to 8 ft. back of what had been thought the real seam and was separated from it by closely packed loose material. There was no sign of this thin hanging wall seam until we had gone down about 8 ft. Evidently the seam in its false position had been torn away from the hanging wall and forced upward until it appeared at the surface. The big apples in a load of mixed sizes will come to the top after hauling over a rough road, for the smaller ones work their way down through the gaps between the larger ones and force them upward. This is what happened here. By a slide, due to the undermining of the seam near the crop by natural causes, two or three large blocks fell off. In the course of time the smaller fragments worked their way down and under the larger pieces, together with soil and other detritus, and finally the larger pieces appeared at a higher elevation than was consistent with their origin.

In prospecting for ores it is well to bear in mind that what appears to be a seam in its true position may prove to be but a piece of the seam firmly bedded in loose rock. Some of the rocks we moved weighed several tons, and we tumbled them down the steep side of the mountain. Where the dip is high the undermining of the seam may cause it to fall away from the hanging wall, and then the situation is full of perplexing problems. This region has been exposed to atmospheric influences since Lower Silurian days and there are many changes in the stratigraphy of the rocks that have to be considered.

ORE-SORTING BELTS.—The new plant at the Aurora West Mine in the Transvaal has an ore-sorting belt of the Robbins patent, put in by Fraser & Chalmers. The belt is made of heavy cotton duck, the same as an ordinary rubber belt, except that the three top plys only extend about one-third of the way from the edge toward the center. The center of the belt is filled with a special composition of rubber, which seems to resist cutting or wearing by the ore falling on same. The sorting plant at the Aurora West contains one of these belts, 250 ft. long or 125 ft. centers, and it is used for the double purpose of an elevator and sorting belt. The belt is 32 in. wide and runs over sets of pulleys placed 4 ft. apart. The belt at the Aurora West runs uphill for the first 45 ft. at an angle of 19°, and the remaining 85 ft. are on the level. The best speed is 45 ft. per minute, and 300 to 400 tons a day are handled; though from three to four times this amount could easily be conveyed. Only 1¾ horse-power is required to drive the belt when it is loaded to its fullest extent.

THE ONTARIO GOVERNMENT ASSAY OFFICE.—The statement of laboratory work done at the Ontario Government Assay Office, at Belleville, which is conducted by the Bureau of Mines, shows a total receipt of 238 samples sent in for examination during the month of September. Of these, 129 samples were received to be assayed for gold, 12 for gold and silver, 25 for copper and 13 for nickel. The samples for analysis consisted of 10 iron ores mostly from Eastern Ontario for partial or complete analysis as to smelting quality; 10 samples of marl from Grey County analyzed as to value in the manufacture of the various cements and concretes of which this mineral is the basis, 2 for zinc from the Lake Superior region where zinc ores are being opened up, 1 sample of graphite from Grenville County, analyzed as to commercial value, one for arsenic and one for platinum. The determinations on samples sent in for assay or analysis aggregated 227, of which 87 were done for the Bureau of Mines, while 140 were for the public on which fees aggregating $161.55 were collected. The samples sent in for identification or preliminary examination as to probable metallic contents or commercial value numbered 34. The ore samples come from all parts of the province, the richest gold ores being from North Hastings District, copper and nickel from Parry Sound and Sudbury, while a few samples carrying gold were sent in from Michipicoten, Lake Superior and Seine River Districts.

LIQUID AIR AS AN EXPLOSIVE.—London "Engineering" records some experiments with liquid air as an explosive, conducted by the Vienna Crystal Ice Company in the presence of representatives of the Austrian Technical Military Committee, and though the results cannot be taken as conclusive, they are nevertheless of interest. The liquid air used was obtained from the Linde Company in Munich, and was transported in open flasks provided with the Dewar vacuum jacket, which were packed with felt and cotton in wood cases, with a loose cap of felt over the open neck. When despatched from the works the liquid consisted of oxygen and nitrogen in the ratio of 75 to 25, but before the experiments were made, about 72 hours later, half of the liquid had evaporated and the remainder contained 85 per cent. of oxygen.

The absorbents used in making the cartridges were kieselguhr and mineral oil (solar oil), and two methods of preparation were adopted. In one the kieselguhr and oil were mixed in a wooden basin, the liquid air gradually added, and the resulting paste transferred to paper cartridges covered with asbestos. In the other the mixture of kieselguhr and oil was placed in the cartridge, contained in a lead case with a separating layer of felt between, and the liquid air was poured in until the paste was thoroughly saturated. Both kinds of cartridge could be handled, and to test their explosive power they were fired in holes 30 in. deep, cut into rock. The results obtained prove that liquid air is an effective blasting agent, though the effects were not so powerful as had been anticipated. This might, perhaps, be remedied by better methods of preparing the cartridges.

The conclusions of the military experts can be briefly summarized: The preparation of the cartridges is extremely wasteful, and, owing to the rapid evaporation, it is impossible to guarantee their strength even in the roughest way; kieselguhr and oil seem to be suitable absorbents; the cartridges should be made on the spot, and must be used within 15 minutes of their preparation, otherwise there is a likelihood of them missing fire; the cartridges give powerful effects, but comparative tests are not yet available; underground the large volumes of oxygen given off might possibly increase the danger of explosion, but on the other hand it would improve the air, and the blasting would not contaminate it. The most serious objections are the uncertain strength of the cartridges and the rapidity with which they deteriorate. Until these drawbacks can be overcome the application of liquid air as an explosive will probably be very limited.

BRITISH COLUMBIA—XXI.
MINERAL RESOURCES AND DEVELOPMENT ON THE UPPER COLUMBIA.

Special Report of W. M. Brewer, Traveling Correspondent.

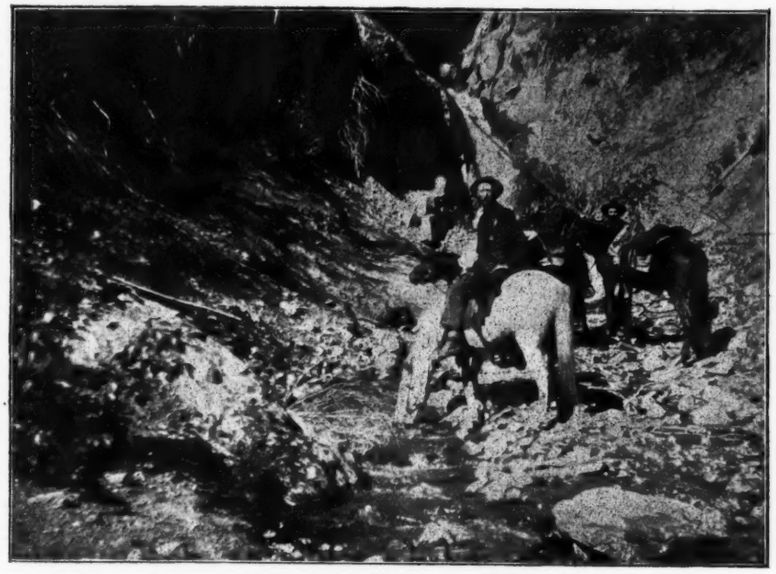
That portion of the East Kootenay Mining District which is tributary to the Upper Columbia River, in British Columbia, and is reached from Golden on the Canadian Pacific Railroad about 500 miles east from the coast, embraces an area of country over 100 miles North and South, and nearly the same distance East and West. It is divided into the Donald, the Golden, and the Windermere mining divisions.

The Columbia River is navigable for a light draft stern-wheel steamboat, from Golden to its head, which is the Upper Columbia Lake, about 20 miles south of the town of Windermere on Windermere Lake. The principal streams in this district, all of which are tributaries of the Columbia River, and all of which have been more or less prospected, are Beaver River, which empties into the Columbia northwesterly from Golden; Canyon Creek, Spillimachene River, with its two forks, No. 2 Creek, Horse-thief Creek, and Toby Creek, which empty into the Columbia, southerly from Golden. All of these tributaries have their sources in the Selkirk Range, and nearly all the work of prospecting has been done in that range, rather than in the Rockies, which form the water-shed on the eastern side of the Columbia. The topography of the country, through which these creeks and rivers flow, is very rough and rugged, and nearly all the peaks are above timber line.

The rock formation, so far as casual observation will permit an opinion to be formed, belong to the Paleozoic period, but metamorphism has affected vast areas of these Silurian rocks, and probably dikes of eruptives occur as intrusions among the limestones and shales. Personally the writer has not seen many instances where such volcanic action has occurred.

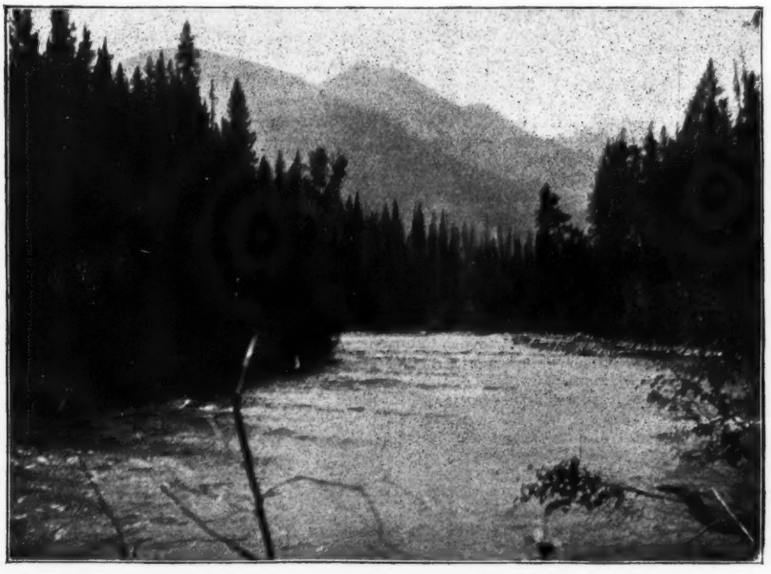
The structural geology of this entire district has apparently been affected by lateral pressure and later erosion; the latter cause has produced some wonderful effects, and the precipitous mountain sides, many of which are covered the entire year by glaciers to-day, show very clearly how great has been the degradation of the rock formations.

Although prospecting has been carried on for the last 10 or 12 years throughout this district, yet it is only within a comparatively short time that it has attracted much attention from mining men, and to-day the conditions, so far as development is concerned, fully warrant one in stating that while there are some excellent prospects, with promising possibilities, yet that there is not a mine, as the term is recognized, in the entire district.



Prospectors on a Tributary of Toby Creek, B. C.

During the past year, in the Windermere Division alone, there have been between 800 and 900 locations of mineral claims recorded, and there has also been records made that assessment work has been performed on 200 locations. The very late Spring, on account of which snow remained at much lower altitudes than has been the case for many years past, being heavy until July, has of course been responsible for the non-performance of more extensive development work in many instances, than has been done. Nearly all of the prospects are situated from 5,000 to 8,000 ft. above the sea level, which means usually that the workings are located from 800 to 2,500 ft. above the level of the creeks.



Scene on Toby Creek, B. C.

Undoubtedly, the chief cause which has retarded the growth of this entire section has been the lack of adequate transportation between the mining camps and smelting centers. To ship ore from the Windermere District means under present conditions the expenditure of from $25 to $40 per ton for packing to the Columbia River. From that point to the

smelter at Trail it can be only transported by water and railroad for about six months during the year; the balance of the time it must be hauled out of the district by wagons. The Trail Smelter people have given the district a very reasonable charge, which includes freight and treatment, but it can be readily seen that with the heavy cost of packing, no ore averaging less than $100 per ton can be mined and shipped profitably. Even then, the mine-owner does not feel justified in attempting to ship ore, when he is throwing away so much money which under other circumstances would be actual profit.

The Delphine and the Swansea are the only two locations from which any ore in quantity has been shipped. The shipment made from the Delphine resulted satisfactorily so far as determining the grade of the ore, because the smelter returns showed that this ore yielded about $112 per ton, total value in gold, silver and lead.

Although the newspapers have reported numerous transfers, at high figures, as having taken place during the past year, yet a personal visit to the district convinces me that actual transfers had been few, and that no such high prices as reported have been really paid. There are evidently a few properties in the district, in which the owners have sufficient faith to attempt thorough development; these are the Delphine, Swansea, Sitting Bull, and Pretty Girl. On these properties, winter camps have been established, and it is proposed to prosecute the work of development continuously.

(To be Concluded.)

OHIO MINES IN 1898.

Chief Mine Inspector R. M. Haseltine has filed with the Governor his annual report for the year 1898. The industrial portion of the report is divided into 28 subjects, which are accompanied by one or more tables arranged in such form as to make the subject under discussion more intelligible. There are 10 reports of district inspectors which are followed by lists of the coal, fire clay and iron ore mines and the limestone quarries of the State.

Coal.—In the chapter devoted to Lake shipments it is found that the amount of coal so transported was 9,270,568 tons, a gain of 1,273,320 tons as compared with the year 1897. Of this amount 3,058,528 tons was anthracite, an increase of 313,398 tons over the preceding year. It is a decrease of 117,194 tons as compared with 1896. Of the 6,212,040 tons of bituminous coal that was handled from the several lake ports, 4,007,755 tons (64.5 per cent.) came from the mines of Pennsylvania, an increase of 680,941 tons as compared with 1897. From the fields of Ohio there was received 1,380,956 tons (22.3 per cent.), an increase of 25,818 tons over the previous year. From West Virginia it is found that 823,329 tons (13.2 per cent.) originated. This is a gain of 261,163 tons as compared with 1897.

From the numerous tables it is learned that the year's production of coal in Ohio was 14,058,135 tons, an increase of 1,609,313 tons over the preceding year. The ten leading counties in point of production are Jackson, Perry, Athens, Hocking, Guernsey, Belmont, Tuscarawas, Columbiana, Stark and Jefferson, in the order named. The first 6 produce over 1,000,000 tons each. Perry County, which headed the list for more than a decade up to 1894, when it gave way to Jackson for 2 years, again assumed the lead in 1896. During 1897 and 1898 it has again been forced to yield to Jackson. These 10 counties furnished 87.2 per cent. of the year's output. The "Hocking Valley," as it is known to the trade, comprises the counties of Athens, Hocking and Perry, and produced 4,577,818 tons, an increase of 447,772 tons (32.5 per cent. of the total) as compared with the previous year.

Of the year's coal production, 5,252,598 tons were mined by machinery. This is a gain over the preceding year of 1,147,474 tons, the greatest amount in the State's history. The returns show that the lump coal averaged 78 per cent. of the total production. In the Hocking Valley 86 per cent. of the above amount originated, as compared with 78 per cent. in 1897. During the year 1898 there were 64 mines in the State in which coal was produced by machines, as compared with 53 in 1897 and 44 in 1896. The average time worked is given at 171 days. During the year installations were made at the Rara Avis, Sedalia and Coehill mines, in Athens County; Nail Mill Mine, in Belmont; Kings, Imperial, Cambridge, Guernsey and Forsythe in Guernsey County; Tom Corwin No. 1, in Jackson; Dillon No. 2 and Kelley No. 2 in Jefferson; Superior and No. 12 in Perry, making an addition of 14 mining plants to the year's list. The use of mining machines was discontinued in Springfield No. 2 Mine in Athens County, Briar Ridge or Mathews No. 2, in Guernsey, and Alma No. 2 in Jackson County. There were 194 mining machines of the electric type in use as compared with 166 in 1897, 130 in 1896, 82 in 1895, 59 in 1894, 42 in 1893, and 27 during 1892. There were 58 machines operated by compressed air, as compared with 67 in 1897, 79 in 1896, 82 in 1895 and 112 in 1894. For the purpose of hauling the coal 12 motors were installed during the year, making the total number now in use in the State 22.

During the year 79 new mines were opened, 100 remained suspended and 73 were abandoned. There were 1,255 mines in the State, 425 of which were regarded as large mines, and 830 employ less than 10 men each. The number of active mines is given as 1,155, an increase of 29 as compared with 1897. Of this number 396 employed more than 10 men each and 761 a less number. The average time worked is given as 150½ days, the same as during the two preceding years.

There were 29,365 miners employed during the year 1898, a gain of 6,888 as compared with 1897. There were 6,546 persons employed as day hands, a decrease of 108 when compared with 1897. Of the latter number 4,016 were employed inside of the mines, as compared with 4,060 in the previous year.

By deducting from the total output of coal in the State the amount mined by machinery it is found that there were 8,805,537 tons produced by pick mining, a gain of 462,839 tons as compared with 1897. This makes an average yearly production of 546 tons as compared with 508¾ tons to each miner during the previous year.

The scale rate for pick mining from November 15th, 1897, to April 1st, 1898, was 56c. per ton; from April 1st to the close of the year the rate advanced to 66c., making the average price for the year 62¼c. per ton. The average amount of fine coal is conceded to be two-sevenths of the output. Thus it will be seen that the average yearly wages for each miner was $242.97, as compared with $192.05 in 1897. As the mines worked 150½ days, the average daily wage was $1.61, as compared with $1.27 in 1897 and $1.47 in 1896.

As before stated, the machine-mined coal amounted to 5,252,598 tons. By applying the rules in force in the Hocking Valley it is learned that 4,097,026 tons was lump coal. Of this 85 per cent., or 3,482,472 tons, came from wide work, and 614,554 tons, or 15 per cent., came from entries and break-throughs, known as narrow work. From the scale of wages it is seen that the average earning for the year of each machine runner was $419.83. The time the machine mines were in operation is given as 171 days, from which it will be noted that each man received $2.45 for each day that the mines were in operation. For shooting down and loading the coal, which furnished employment to 5,887 men, there was paid to each an average of $237.59 for his year's work, or $1.39 for each day that the mines worked, as compared with $1.26 during 1897.

There were 1,993 inspections made by the members of the department, 213 permanent improvements secured, 99 sets of scales tested. Of the scales inspected 17 were found to weigh inaccurately, 4 of which are reported as weighing against the miner, 1 against the operator, the beneficiary of the remaining 12 sets not being given.

Iron Ore.—The iron ore production of the State was confined to the counties of Jackson, Lawrence and Scioto, and equaled 51,659 tons, all of which was hematite.

Fire-Clay.—In all 18 counties report a production of fire-clay amounting to 1,026,922 tons, a gain of 204,195 tons as compared with 1897. The average time worked is given as 171 days, a gain of 31 when compared with 1897. There were 724 miners employed in its production and 2,657 persons engaged in the manufacture, as compared with 656 miners and 3,317 hands in the manufacture during the preceding year.

Limestone.—In the production of limestone the returns show that gains occurred in 5 of the 9 classifications. The average time worked was 132 days as compared with 131 in the previous year. The number of persons engaged in the industry is given at 3,149, as compared with 3,398 during 1897.

Accidents.—There were 341 casualties reported. Of this number 54 resulted fatally, 155 were of a serious nature and 134 were of minor consequence. Of these accidents 203, or 59 per cent. of the total, were attributable to falls of roof or coal; 20.2 were injuries received from the mine cars. There were 270,463 tons of coal produced to each life lost, and 90,736 tons mined to each person seriously injured. There was one fatality for every 563 persons employed, and 1 injury to each 102 persons.

Light carburetted hydrogen gas was present in 35 mines. These are distributed over 10 of the coal producing counties. It caused 1 fatal, 2 serious and 10 minor casualties.

Powder Used.—There were 956 persons or firms operating mines in the State. Of this number 58 per cent. made returns as to the amount of powder consumed. These firms produced 81 per cent. of the year's tonnage. The footings show that there were 190,183 kegs of 2,377 tons of powder exploded in the recovery of 11,360,540 tons, which shows an average of 59.7 tons to the keg of powder consumed. The least amount is given as 29 tons, which is reported from Jackson County, and the largest production is credited to Belmont, which is returned at 148 tons.

WATER POWER IN BOSNIA.—According to a consular report on the trade of Bosnia and Herzegovina, a company has obtained from the Government the exclusive right to employ the water power of the famous Sliva waterfall at Jaice, from which it is said 30,000 H. P. can be obtained without detriment to the beauty of the fall. At present only 10,000 H. P. are being utilized for the production of electricity, employed as the motive power in large chemical works producing chiefly calcium carbide.

PIG IRON PRODUCTION IN GERMANY.—According to the returns of the German Iron and Steel Association, the production of pig iron in August was 681,651 metric tons, being 3,783 tons less than in July, but 64,878 tons greater than in August, 1898. For the eight months ending August 31st the output was, in metric tons:

	1897.	1898.	1899.
Foundry iron	711,270	945,097	952,037
Forge iron	1,081,994	1,050,428	1,127,615
Bessemer pig	371,479	347,247	346,905
Thomas (basic) pig	2,316,291	2,694,065	2,940,961
Totals	4,481,034	4,836,837	5,367,518

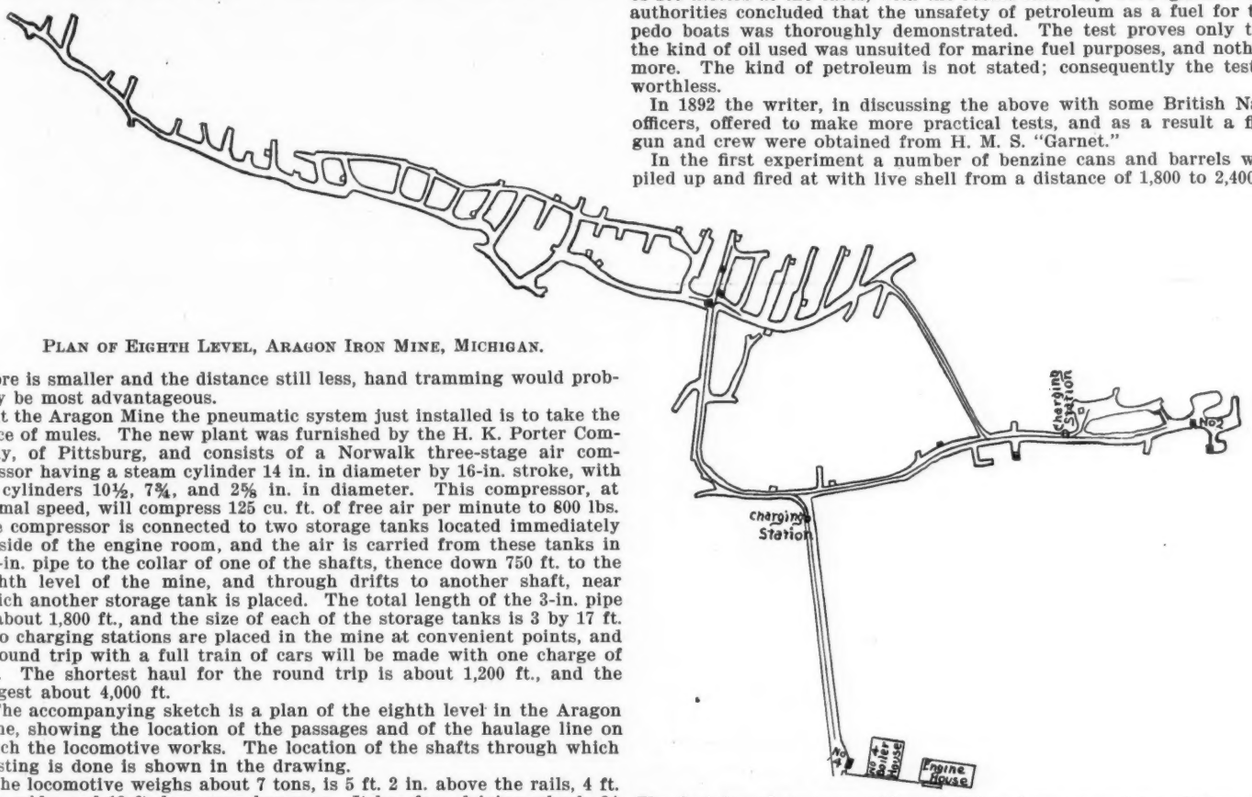
The increase this year over last was 530,681 tons, or 11.0 per cent.; over 1897 it was 886,484 tons, or 19.8 per cent. At the end of August there were 149 furnaces in blast.

SOLIDIFYING HYDROGEN.—Prof. Dewar was able to announce before the recent meeting of the British Association the success of his endeavors to solidify hydrogen. Previous attempts had been unsuccessful, but, in the course of experiments on platinum resistance thermometers in liquid hydrogen, a quantity of the latter solidified into a white froth like mass when the pressure was reduced below 60 mm. This was at first attributed to an inward leakage of air which had solidified, but, by repeating the experiment with hydrogen contained in a hermetically sealed globe, solid hydrogen was obtained from the gas by boiling liquid hydrogen at a pressure of between 30 and 40 mm. The frothy character of the substance has hitherto prevented its density being determined, but the maximum density of the liquid hydrogen was found to be .086, its density at its boiling point being .07. The solid melts at a temperature 16°-17° absolute. It has not, in any way, the appearance of a metal. Helium, which is still more volatile than hydrogen, has since been liquefied by the use of solid hydrogen.

COMPRESSED AIR HAULAGE IN AN IRON MINE.*

The Commonwealth Iron Company, C. C. Davidson, superintendent, has just completed the installation of a pneumatic haulage plant at its Aragon Mine, Norway, Mich. This is the first employment of compressed air as tramming power in a Lake Superior iron mine and the results attained will be awaited with interest. Four methods of tramming have been employed in Lake Superior iron mines. In the majority of cases hand power is used and this for a long time was the only system. At the Chapin Mine, wire rope haulage was introduced. Later the Cleveland Cliffs Iron Company installed an electric haulage system, which was also adopted at the Lake Angeline Mine. Animal power was introduced more recently in Vermilion and Mesabi mines, and mines on other ranges have followed them. The difficulty of getting animals down a shaft is an obstacle in some cases, and the mules selected for the work are of the smallest type.

In the discussion of the haulage question before one of the meetings of the Lake Superior Mining Institute it was the general opinion that wire rope haulage is best adapted to situations in which the quality of ore is large, the distance great, and the levels straight; that the electric system could be advantageously used where the quantity of ore is large, the distance great and the levels tortuous, branches being necessary to reach outlying portions of ore. But where the quantity per level is smaller, the distance not quite so great, and flexibility in operations necessary, animal power could well be employed. Where the quantity



PLAN OF EIGHTH LEVEL, ARAGON IRON MINE, MICHIGAN.

of ore is smaller and the distance still less, hand tramming would probably be most advantageous.

At the Aragon Mine the pneumatic system just installed is to take the place of mules. The new plant was furnished by the H. K. Porter Company, of Pittsburg, and consists of a Norwalk three-stage air compressor having a steam cylinder 14 in. in diameter by 16-in. stroke, with air cylinders 10½, 7¾, and 2⅝ in. in diameter. This compressor, at normal speed, will compress 125 cu. ft. of free air per minute to 800 lbs. The compressor is connected to two storage tanks located immediately outside of the engine room, and the air is carried from these tanks in a 3-in. pipe to the collar of one of the shafts, thence down 750 ft. to the eighth level of the mine, and through drifts to another shaft, near which another storage tank is placed. The total length of the 3-in. pipe is about 1,800 ft., and the size of each of the storage tanks is 3 by 17 ft. Two charging stations are placed in the mine at convenient points, and a round trip with a full train of cars will be made with one charge of air. The shortest haul for the round trip is about 1,200 ft., and the longest about 4,000 ft.

The accompanying sketch is a plan of the eighth level in the Aragon Mine, showing the location of the passages and of the haulage line on which the locomotive works. The location of the shafts through which hoisting is done is shown in the drawing.

The locomotive weighs about 7 tons, is 5 ft. 2 in. above the rails, 4 ft. 2 in. wide, and 12 ft. long over bumpers. It has four driving wheels 24 in. in diameter, with a wheel base of 4 ft. The gauge of the track is 22½ in. The cylinders are 7 by 12 in. The air pressure in the storage tank is 800 lbs., and in the locomotive tank 700 lbs. This pressure is reduced to the regular working pressure of 140 lbs. The time required to charge the locomotive tank is from 30 to 60 seconds.

The haulage plant is capable of handling 1,000 tons in 10 hours. The trains are made up of 20 cars each, and four trains can be taken every 10 hours from each of the 10 places from which ore is gathered. Three of these places which are near No. 2 shaft, send their ore to that shaft. The other seven places are in the more remote portions of the eighth level and their ore is sent to No. 4 shaft. Twenty empty cars and the motor weigh 18 tons; 20 loaded cars and the locomotive weigh 43 tons in all.

GERMAN COAL SYNDICATES.—The collective output during the first half of the present year of the collieries forming part of the Rhenish-Westphalian Coal Syndicate amounted to 23,506,129 tons, corresponding with a restriction from the apportionment figure (24,741,887 tons) of 4.99 per cent. against 8.35 per cent. for the first half of the last year. The syndicate is now in litigation with several large iron companies that have become owners of collieries, including the Krupp firm, which has purchased the Hannibal Colliery, and the Hösch steel works to which has been annexed the Westphalia Colliery, and both of which have refused to pay the percentage claimed by the syndicate, because the collieries in question were on its books at the time of the transfer. In order to prevent a dead-lock, however, it has been arranged that the iron companies can raise their coal supplies on paying the percentage, which will be returned should the decision of the Appeal Court prove unfavorable to that body.

*Abstract of Article in Cleveland "Iron Trade Review."

CRUDE PETROLEUM AND ITS PRODUCTS AS FUEL.

Written for the Engineering and Mining Journal by H. Tweddle.

(Concluded from page 490.)

Safety of Liquid Fuel of High Fire Test.—Residuum oil which has a fire test of say 250° to 300° F. is the most suitable for fuel on steamers, since it is absolutely safe, as it cannot take fire and does not give off inflammable gases until heated to a temperature above that of boiling water. As the fuel would be carried in tanks below the water line, heating to that degree becomes a practical impossibility. Such oil may be placed in a bucket and stirred with a red hot poker without catching fire; shovelsful of hot coals may be thrown into it, but they will sink and be extinguished, the same as if thrown in water. It has been said that petroleum is dangerous as a fuel for steamers. I answer that it all depends upon the kind of petroleum. It would be foolhardy to use a low-test petroleum on steamers, and dangerous to use even a medium-test oil, such as kerosene; but, as before stated, high-test oils are absolutely safe.

The French government made tests to ascertain whether it would be possible to use petroleum as a fuel for torpedo boats, and in order to obtain information on this point the authorities floated on a raft cases of petroleum, protected by thin steel plates similar to the sides of a torpedo boat. A quick-firing 1.8-in. gun was fired from a distance of 100 meters at the cases, with the result that they were ignited. The authorities concluded that the unsafety of petroleum as a fuel for torpedo boats was thoroughly demonstrated. The test proves only that the kind of oil used was unsuited for marine fuel purposes, and nothing more. The kind of petroleum is not stated; consequently the test is worthless.

In 1892 the writer, in discussing the above with some British Navy officers, offered to make more practical tests, and as a result a field gun and crew were obtained from H. M. S. "Garnet."

In the first experiment a number of benzine cans and barrels were piled up and fired at with live shell from a distance of 1,800 to 2,400 ft. The first few shots were wide and did no harm except to splinter some of the cases and allow some of the oil to run out; a shell then struck and exploded in the pile of cases, throwing them about considerably, but no fire took place, probably because the flame from the burning powder did not last long enough to ignite the gases after they had mixed with the air. It must be remembered that benzine, per se, is not explosive, but only when mixed with certain proportions of air. Another shell, exploding amongst the cases, set fire to them, showing that inflammable vapors had been formed and only needed a flame to ignite them.

The experiment was repeated with kerosene and crude oil, and with practically similar results, showing that both medium and low-test oil could be ignited. Then fuel oil of 240° test was tried without any results except blowing the cases to pieces. Firing with shrapnel simply perforated the packages and allowed the oil to flow over the ground, and shell then exploded in the debris had no effect so far as igniting it was concerned.

The final test was to take a tank full of the same fuel oil, in which a tin cartridge, containing 5 lbs. of coarse gunpowder, was placed, suspended by a wire and exploded electrically. A column of oil was blown up many feet without harm except that due to the gunpowder explosion. This was done repeatedly with similar results.

Finally, the writer has tried many experiments regarding the action of high explosives on petroleum, with the result that it may be stated that dynamite detonated in the presence of even the lighter petroleums will not ignite them, but only scatter the liquid.

This indicates that a naked flame is required to ignite the gases, and to accomplish this the easiest method was to use a can of coarse gunpowder as a primer. This exploded and detonated the dynamite, which scattered the benzine and mixed it with the air, the explosive mixture being immediately ignited by the grains of burning powder hurled through the air.

These tests, I think, demonstrate that high-test petroleum is safe from ignition. Compared with coal, it is safer on board ship, since it is not subject to spontaneous combustion, which has been responsible for greater damage and loss of life than is generally known, since the number of coal carrying vessels reported "missing" every year is always proportionately larger than those carrying general merchandise.

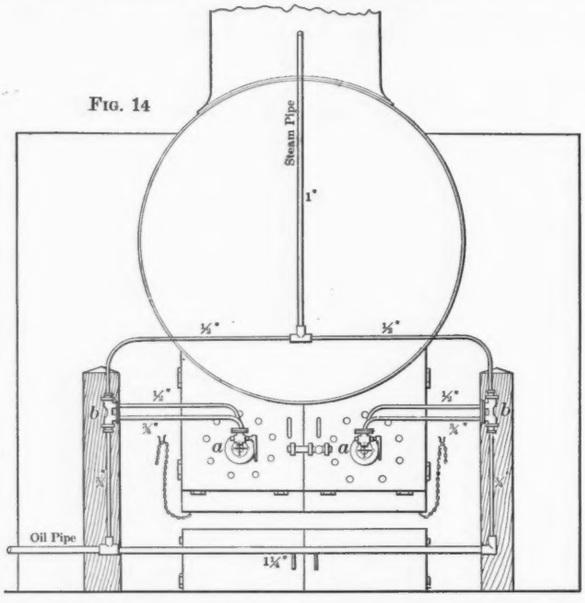
Petroleum exposed to the air absorbs oxygen very slowly, while coal, especially some kinds of the bituminous variety, absorbs atmospheric oxygen rapidly, converting the contained hydrocarbons into water and carbonic acid, with a thermal loss amounting to as much as 50 per cent. of the original value within nine months.

This conversion (or really slow combustion) is attended with the degagement of considerable heat, and if the coal contains free sulphur or pyrites in quantity the action is accelerated and may be sufficient to produce "spontaneous combustion." This slow combustion is greatly favored by moisture.

Notwithstanding that the greatest drawback in vessels of war is their limited stowing capacity for fuel, it has been urged that substituting liquid fuel for coal on navy vessels would weaken their protection insomuch as the coal bunkers are so arranged that their contents protect the vitals of the ship. This is, however, rather a weak argument, since the protection is only given when the bunkers are full, and the probabilities are that naval engagements will not always be fought immediately after the vessel has been fully coaled; and once the coal is used from the upper part of the bunkers this protection disappears and an empty space is left, which more than likely would contain gases that might be dangerous in case of a shell exploding in them. It is still an open question whether bunkers should be ventilated, especially when freshly mixed damp coal is used, since the moisture present in coal is a measure of its absorptive power, and the more absorptive coal is the more dangerous.

Storing and Handling of Liquid Fuel.—For land service the ordinary oil tanks are too well known to need description, and it is sufficient to say that a large tankage plant is more economical to erect than a coal storage plant, with its complicated machinery for handling the coal mechanically, and is much less liable to accidents, since only pumps and the requisite pipe lines are needed to handle the fluid. Liquid fuel may be kept for years unchanged, while coal deteriorates from long exposure to the atmosphere.

Fig. 14



For marine purposes the advantages are still more obvious, since the fuel tanks may be in any part of the ship and sub-divided to any extent. For instance, the writer has often used the ballast tanks for carrying fuel oil, and these once emptied of oil can be filled with water should the trim of the ship require it, or by a simple turning of valves the fluid may be transferred from one end of the ship to the other without expense or labor. For instance, in modern vessels the ballast tanks have a capacity of from 10 to 20 per cent. of the whole vessel, and they are perfectly useless for other purposes save to carry extra feed water for the boilers. In case they were completely used for fuel oil the feed could be made up by the use of evaporators.

The disagreeable, dirty and lengthy process of coaling is done away with, and instead of having to hang awnings and cover up machinery to prevent entrance of dirt and grit, all that is necessary is to make a flexible hose connection with a shore pipe and the liquid fuel is pumped on board in a fraction of the time that coaling would take.

Extra facilities are required to load steadily 100 tons of coal an hour, and in large steamers stowing, say, 3,000 tons of coal, the loading generally takes two days, some 40 to 50 men being employed in handling and distributing it, the cost running from $500 to $1,000. Delivering coal to the ship is a simple question, but the stowage of it in bunkers limits the speed of coaling.

The amount of cleaning usually required and the amount of harm done by the grit is no small item, not only when coaling but when under ordinary steam, for soot and cinders are constantly being ejected from the funnel, while with oil fuel vessels could be kept much neater, and much valuable time now devoted to holystoning decks, scrubbing gratings and repainting upper works could be spent in more remunerative ways. The labor of cleaning ship is considered to be twice what it was in the days of sails.

So much for "oiling up" in a harbor. At sea the advantages are far greater, because a tank steamer can be taken close alongside another steamer requiring fuel and hose connections can be made; or, if the weather is too rough to allow of this, an oil lighter can be taken in tow, and, while steaming at very slow speed, hose can be run along the towing line and oil pumped through at a good rate. Take, for instance, the difficulty our vessels had off Cuba, in recoaling, while, if oil were used, they could "oil up" in any moderate weather.

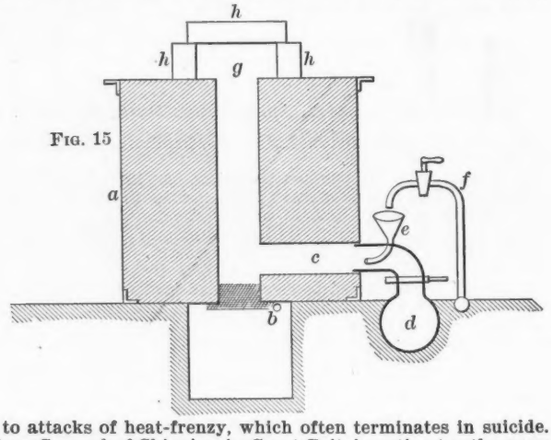
Coaling at sea is impracticable except in exceptionally smooth weather, and then at a rate which does not exceed 30 tons an hour on a very large war vessel, and only at a great cost of labor, time and complicated appliances.

As before mentioned, the oil can be stored at any part of the ship that is the most convenient and all that is required is the necessary air, and oil pipes which would be controlled from a central pump station. As required the oil would be drawn from any of the compartments and delivered to the service tanks, from which it would gravitate to the furnaces. Pumps would do the work which now takes a number of coal trimmers and passers, and there are no ashes to be handled. In modern high-powered vessels the stoke-hole gang includes a large percentage of the crew, and nearly all of these would be dispensed with or could be used elsewhere, since the fuel gravitating to the furnaces only requires one man for several boilers, and he, by means of a few valves, has the fires under absolute control. The scarcity of good stokers has always been a stumbling block in the way of the world's navies; such men are not made in a day, and the marine engineer fully appreciates their importance when it comes to the question of pushing a vessel's speed to the utmost.

It is not only momentarily that liquid fuel has the advantage over coal, but continuously, and the harder a boiler is forced the more salient are the advantages of liquid fuel. Moreover, the "oil stoker" may not be a man of brawn, but will use his head, where the other uses his strength, and consequently will probably be of a soberer temperament than the grimy stoker of to-day, whose hard life is little known.

In warm weather, or in a warm climate, the temperature of the overheated boiler rooms of steamships becomes so high that stokers are liable to attacks of heat-frenzy, which often terminates in suicide. The Registrar-General of Shipping in Great Britain estimates the proportion of suicides among steamship stokers at 1 in 900 in the mercantile marine; while for men of the same average age on land, the rate is only about 1 in 10,000. Stokers also suffer frequently from what is well known among physicians in seaports as "fireman's colic."

Fig. 15



With liquid fuel the fires are perfectly steady, and the steam pressure may be kept constant, while the temperature of the stoke-hole is lower than with coal owing to the fact that the furnace doors do not have to be opened and no hot cinders or ashes have to be pulled out. No smoke need be visible, which, for certain purposes, such as a fleet manoeuvring, is a distinct advantage; while if it is desired to leave a trail of smoke for signaling purposes all that is required is to close the dampers or turn on more oil, and immediately dense black smoke issues in clouds from the funnel.

As regards stowage, it is to be noticed that fuel oil will weigh approximately 50 to 60 lbs. per cubic foot, the exact weight depending on the specific gravity of the particular oil and the temperature, consequently we may calculate 40 cubic feet to the ton, or about the same as coal, although there is a slight advantage to the oil; but the great advantage of fuel oil is in the facility with which it can be handled, being a fluid, and that it contains more units of heat in a given weight than any other fuel which can be used economically.

Considerable attention has been given to the solidification of petroleum, but this is a step in the wrong direction, because the ease with which petroleum can be handled depends on its fluidity, and once solidified it would have but little advantage over the ordinary briquette fuel. Moreover, to solidify petroleum it must be mixed with sawdust, pulverized coal or some inert substance, or else a solid emulsion is made, in which alkalies are used. These do not add to the thermal qualities of the coal, and may even exert a deteriorating influence on the furnaces in which such fuel is used.

It may be taken as an axiom that the demand for space on all vessels, and especially on men of war, is never satisfied. This is another reason why the bunker space should be utilized and the ballast tanks made to carry the fuel.

We have previously mentioned some of the advantages of liquid fuel, but outside of fundamental advantages there are many practical advantages and conveniences, such as:

1. Diminished loss of heat up the funnel owing to the clean condi-

tion the tubes can be kept in, and to the smaller amount of air which has to pass through the combustion chamber for a given fuel consumption.

2. A more equal distribution of heat in the combustion chamber, as the doors do not have to be opened, and consequently a higher efficiency is obtained; and the heat is easier on the metal walls, for if one part is hotter than another uneven strains are set up.

3. With oil there is no chance of getting dirty fires on a hard run as with coal.

4. A reduction in cost of handling fuel, since in one case it is all done mechanically or by gravitation, while with solid fuel a great deal of manual labor is required.

5. No firing tools or grate-bars are used, consequently the furnace lining and brickwork floors, etc., suffer less damage.

6. No dust nor ashes to cover or fill the tubes and diminish the heating surface, nor to be handled or carted away.

7. Petroleum does not suffer while being stored, while the deterioration of coal under atmospheric influence is well known, not to mention the expense and shrinkage in handling, labor of feeding fires, removing clinkers, etc.

8. Ease with which fire can be regulated, from a low to a most intense heat in a short time.

9. Absence of sulphur or other impurities and longer life of plates, etc.

10. Lessening of manual labor to fireman.

11. Great increase of steaming capacity, as was conclusively proved when many factories returned to coal in Pennsylvania and Ohio; they had to increase their boiler capacity about 35 per cent.

For naval purposes, outside of the increased speed and steaming capacity, there is another advantage which must not be lost sight of, and that is the great ease with which fires are quickly adjusted to suit conditions.

It has often been urged by laymen that men of war are not able to stand the wear and tear that the average Atlantic liner does, and the question is brought up how many cruisers or battleships could do the steady work of the Atlantic greyhounds without quickly breaking down.

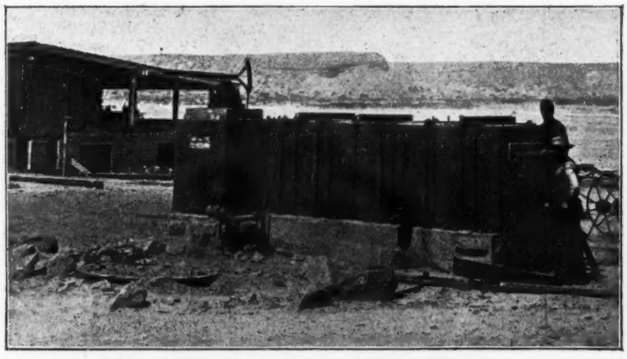


Fig. 16.—Petroleum Burning Furnace.

As a matter of fact, the work demanded from naval vessels is entirely different from that of a "liner." The latter starts from her pier on one side of the Atlantic and keeps up an almost even gait until her destination is reached, while the naval vessel, especially if manoeuvring, is called on to be constantly changing her rate of speed, and in fleet evolutions must suit her speed to that of her consorts. The result is that fires are being constantly changed and far greater strains are thrown on the boiler plates, with the usual results, leakage and starting of seams. If liquid fuel were used these difficulties would in a great measure be obviated owing to the fact that the fires could be easily increased or checked without undue strain on the furnaces and tubes, no matter whether marine or water-tube boilers were used.

Even under conditions when coal is relatively cheaper than liquid fuel the advantages of the latter are sufficient to make its adoption desirable in order to make exceptional large demands for steam.

The introduction of liquid fuel in a navy will always meet with great opposition from one of the following causes:

1. Reluctance to admit any improvement. 2. Opposition of coal mine owners. 3. Probable increased expense. 4. Difficulty of obtaining liquid fuel.

The coal consumption of the world is probably in the neighborhood of 600,000,000 tons per annum, while that of petroleum is only about 17,000,000 tons, of which by far the greatest part is used for illuminating or lubricating purposes; so we see that the amount of petroleum available for fuel purposes is probably not more than 1 per cent. of the coal used. Liquid fuel will therefore never be used very extensively as compared with coal, but where it is used it will have many advantages over the solid fuel. On vessels of war, and especially torpedo boats, it would give the very best results if used intelligently.

Russia and the United States are the only countries that could safely adopt liquid fuel for their naval vessels owing to the fact that they are the only two countries that produce petroleum in sufficient quantity to warrant its adoption; but it is well to note that liquid fuel can be burned very advantageously in a furnace arranged for coal, and that change can be made from either fuel to the other in a few moments and without altering any of the arrangements. In such cases the grate bars are left in place and may be covered with coal or brick and the oil sprayed in above. The burners are fixed to swing on a joint, and in case of a necessity for using solid fuel are simply swung to one side out of the way. Fig. 14 shows such an arrangement. Here a large tubular boiler is being fired from below with two burners, a a, which are pivoted at the joints, b b. The steam is delivered from above, the oil from below. When not in use the burners are swung back and the fire-doors opened in the usual way.

For forge work petroleum gives most excellent results, heating the iron quicker and giving a much cleaner iron to work on. For a forge it is necessary to use an air blast instead of steam. A fan blast will serve, but a stronger one (such as furnished by a blower) is more satisfactory. The best form for an all-round forge for oil fuel is shown in Fig. 15. The casing, a, is cylindrical, of tank iron, and is filled with fire-brick, leaving a central opening, 3 to 4 in. diameter, extending to the bottom of the cylinder, where it is closed by a hinged door, b. Near the bottom of the cylinder the passage, c, connects with the air blast pipe, d, a 2-in. air nozzle being sufficient for ordinary work, say up to welding 4-in. iron. A few inches from the end of the blast pipe a funnel is screwed into it with the end pointing in the same direction as the blast; f is the oil delivery pipe, regulated by a small cock, a lump of fire-clay is rammed on top of the door, b, to protect it, and the forge is ready for work. The blast being turned on and the oil valve opened, the pulverized oil is ignited by a torch at g, or, better, by some shavings thrust down the central tube. In a few moments the brickwork becomes white hot and if a heavy blast is turned on, a roaring white flame can be thrown 10 ft. above the opening, g; but for ordinary work only a thin little stream of oil is used, and almost no flame appears at g, but the brickwork becomes incandescent. A few loose fire-brick, h h h, placed round the opening to suit the work in hand, complete the outfit. If an extra heavy blast is turned on and sufficient

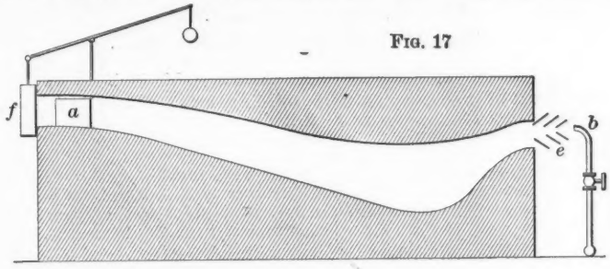


Fig. 17

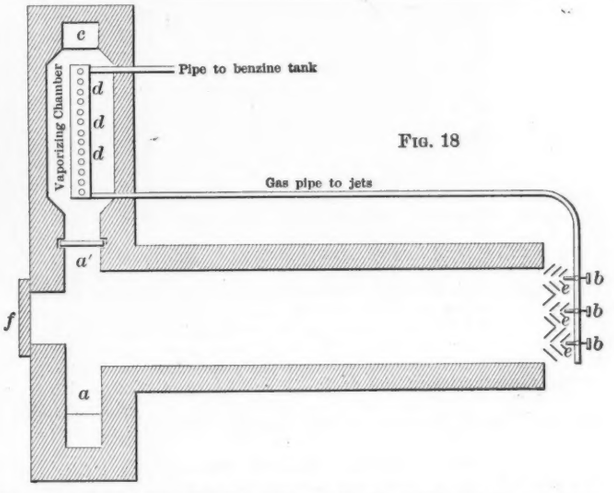


Fig. 18

oil used, the brickwork will soon begin to melt, and in ordinary use the central passage requires to be fettled up now and then. Slag accumulates over the door, b, and would block the passage, but it can be removed by opening, b, and knocking it through into the pit below.

I have never known a forge built on the above plan to give anything but satisfaction; in fact, most smiths will complain they cannot get rest enough between heats when using it.

For cupola work petroleum has also been used to advantage. It is introduced at the tuyeres with the blast in the same way as with the forge, but of course a certain amount of coke had to be charged with the iron.

The writer does not know that petroleum has ever been used in ordinary blast furnaces, but there is no reason it should not be used as an auxiliary in those localities where the price of petroleum will admit. In roasting and cupelling furnaces it has been used with great success, being in each case burned with an air blast.

Some years ago the writer had at his disposal a large quantity of light benzine and built a furnace adapted for it. The conditions were so peculiar that a description of it will prove interesting.

A general view of the furnace is shown in Fig. 16, an elevation in Fig. 17 and a plan in Fig. 18. The benzine was stored in a tank at an elevation of some 200 ft. above the furnace.

The furnace had two outlets, a to the chimney, and a' to a vaporizing chamber filled with a series of pipes through which the benzine was forced from the tank at a elevation. From the vaporizing chamber a pipe led from the benzine pipe to the jets, b b b. Starting with a cold furnace, one of the jets would be slightly opened and a stream of benzine would issue from it with the force due to the 200-ft. head. An artificial air blast was used in lighting up, and soon the furnace would be at a nice red heat, the products of combustion escaping by the stack at a.

The damper at a' would be opened and part of the heated gas diverted into the vaporizing chamber, where the coils, d d d, would be heated

and the benzine therein vaporized, so that nothing but benzine gas would issue at the jets, b b b, under a pressure equal to the 200-ft. head, or about 70 to 80 lbs. per square inch. This jet of gas issuing under such high pressure would carry a large induced volume of air with it, especially when it was directed through the inverted funnels, e e e.

A little manipulation was necessary to get the vaporizing chamber to the right temperature (a low red), as, if the coils were overheated, the benzine in them would decompose and deposit carbon, and thus choke the coils; but, once regulated, the stream of gas was constant, and the temperature under absolute control. Metal or ore was then charged in through the hanging door, f, and would soon melt, run down and be drawn off in the usual manner.

In this furnace flameless combustion was easily obtained and the heat was so intense that I was never able to obtain bricks sufficiently refractory to resist the full pressure of the gas for any length of time.

Our present method of burning coal has improved but little, and it seems to the writer that there is a large field open for amelioration. Since liquid fuel cannot be universally used, the next best thing would be to work out some practical plan for the burning of coal on the same lines as petroleum, by pulverizing and injecting it into the furnace in a finely divided condition, so that no large excess of air is required to consume it.

Those who have facilities for burning liquid fuel should keep this point before them, and as probably the most practical method for burning pulverized coal will be on the same lines as burning liquid fuel they would have good opportunities for comparative tests, and the door might be opened for some radical improvement in burning coal.

ABSTRACTS OF OFFICIAL REPORTS.

Anglo-Sicilian Sulphur Company, Limited.

The report of the Council for the third financial year ending July 31st last, states that the gross profits on the year's trading (taking exchange at 27.20, the same rate as last year) have amounted to £127,368, to which must be added interest on temporary investments and other receipts bringing the total gross profits to £134,430. After deducting working expenses and other items, including an amount of £3,945 added to the reserve for eventual depreciation of stocks of sulphur, which then amounts to £24,520, there remains a net profit of £93,232. There is a further credit of about £10,000, standing among sundry creditors and outstandings, which has not yet been brought into profit and loss account, but when accurately ascertained it will be added to the reserve for eventual depreciation of stocks of sulphur. Out of the net profit of £93,232, an interim dividend of 3 per cent., less income tax (on the amount paid up per share) on the preference shares for the six months to January 31st was paid in March last, absorbing £17,167, and it is now proposed to pay a further dividend for the second half of the year of 3 per cent. (on the amount per share paid up) on these shares, amounting to £17,167, less income tax, making a total distribution on the preference shares of 6 per cent. for the year, as provided by the articles of association. Of the balance, 20 per cent., or £11,779, has been credited to the capital guarantee fund (held in reserve according to articles of association), which then amounts to £26,109; a sum of £27,673 has been credited to the general reserve fund, which then stands at £58,121, and the remainder, £19,444, is divisible as follows: One-tenth (£1,944), free of income tax, to the preference shareholders, which, with £205 standing to their credit from last year, will admit of a further distribution on this class of shares, in addition to the 6 per cent. as above, of 2/3d. per share on the fully-paid shares and ½d. per share on the shares on which 15s. have been paid, carrying forward £560, and the Council recommend that these amounts be dealt with accordingly; nine-tenths to the ordinary shares, or £17,500, with which the Council recommend payment of a dividend of 6d. per share, free of income tax, being 50 per cent. on each ordinary 1s. share.

Breece Mining Company, Colorado.

The report of this company for the year ending September 30th, 1899, shows receipts as follows: Rental, $50,984; interest, $313; total, $51,297. Payments were: Salaries, office expenses, etc., $7,378; settlement of old dividends, $50; dividends, Nos. 3, 4, 5 and 6, $40,000; total, $47,428. This left a balance of $3,869, which, added to $16,597 brought forward from previous year, made a total of $20,467 on hand at the close of the year.

The directors' report says: "During the past year work at your mine has gone on in a satisfactory manner; a large amount of development work has been done, mostly in exploration-hunting for ore bodies. The two new shafts put down in 1898 have been sunk deeper, and the old shaft sunk on the property some years since, has been pumped clear of water, a pump station cut near the bottom and arrangements made to explore the property from a depth of about 600 ft. It is hoped this will result in the finding of new ore bodies, as there are some indications of ore carrying gold and silver. The drifts opened in the main workings have brought to sight a fairly large body of ore, and the manager at the mine feels well assured that there is value in this ore sufficient to secure to the stockholders quarterly dividends of 5 cents per share for at least a year. The 20-stamp mill erected by the lessees during the early part of the past year has not proved as successful as was expected, not because there was not sufficient ore to serve the mill, but because of a peculiar talc substance which prevents free amalgamation of the gold on the plates. Further experiments are being made with this ore and it is hoped that some method may yet be found to economically work this ore.

"The main purpose of the special stockholders' meeting, held June 5th, 1899, was to re-arrange the shares of the company so that stockholders could contribute stock for the purchase of the lease on the company's property. The effort to accomplish this failed, because about 4,000 shares voted against the proposition, and about 35,000 shares did not vote at all. Therefore the attorneys of the lease-holders and of this company advised that the Breece Mining Company could not safely make delivery of the shares agreed upon as compensation for the lease, as the negative voting stockholders and those not voting could compel a pro rata division of the changed stock; in other words, stockholders voting affirmatively in this matter could not bind those who did not act with them. The vote, however, showed a large majority of stockholders in favor of purchasing the lease, and it is hoped that at a future date a more feasible plan can be presented whereby a consolidation of interest may be had which will largely increase the income of Breece Mining Company stockholders.

"The average value of ore mined has been $27 per ton. The average royalty received by the company has been 15½ per cent. The average price paid for silver during the current year has been 60c. an ounce."

APPLICATIONS OF ELECTRICITY AT CRIPPLE CREEK, COLO.

Few mining districts in the United States are so well adapted to the use of electric power as Cripple Creek. The small area of the district and the close proximity of the mines make the transmission of electricity an easy matter; while the fact that most of the mines are small in extent—whatever their output may be—makes the maintenance of separate steam plants costly, and the purchase of power from others an economy as well as convenience. The pioneers in this district were quick to recognize the facilities for domestic life and mining operations which electric transmission would afford. Probably no other mining dstrict is so thoroughly supplied with electricity, for the home of the miner is lighted by incandescent lamps; he goes to his work in an electric street car; by an electric hoist he descends the mine; electric lamps furnish illumination for his work; electrically driven pumps keep the mine dry; electric air compressors run drills; electric hoists raise the ore, and by electricity the blasts are fired from switchboards remote from the point of explosion.

Electric current is supplied to the mines by the Colorado Electric Power Company, which operates three Westinghouse alternating current, 470 KW. generators, 3-phase, 500 volts, capable of supplying 2,250 H. P. This station transmits current 27 miles to Cripple Creek, at 20,000 volts. A plant has also recently been established by the La Bella Mill, Water & Power Company for supplying power to its mills and mines.

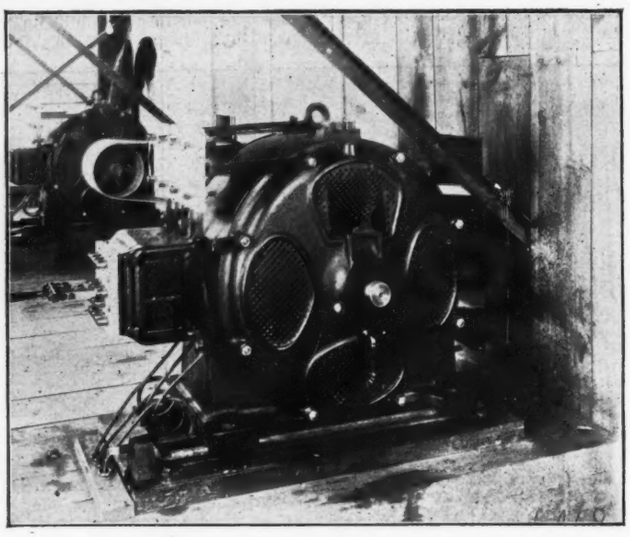


Fig. 1.—Westinghouse Electric Motors Operating Crushers.

In many mines in the district Westinghouse type C induction motors have been introduced for hoisting, pumping, operating air compressors for drills, lighting, and for operating crushers and other machinery. The Colorado Ore Reduction Company has a 150-H. P. Westinghouse motor for operating its crushing machinery. Fig. 1 shows 2 Westinghouse type C motors operating crushers, the motors being partitioned off from the crushers to preserve them from the dust, the belts passing through the partition to operate the machines. Fig. 2 shows a Westinghouse type C motor operating the mine hoist of the Wisconsin Mine, Cripple Creek. The Lily Gold Mining Company uses 100 H. P. for operating hoists and air compressor; the Moon Anchor Gold Mining Company has a 100-H. P. Westinghouse type C motor for pumping from a depth of 600 ft. The needs of the majority of consumers range from 75 H. P. down to 5 H. P. A Westinghouse type C motor of 15-H. P. suffices for hoisting through a shaft 450 ft. deep; when this depth is exceeded a motor of 30-H. P. is used, which will be sufficient for a depth of 800 ft.; for still greater depths motors of from 75 to 100-H. P. are installed.

The companies supplying electric power give every facility to lessees and prospectors; they rent small hoists, worked with electric motors, from 5 to 30 H. P., thereby enabling the lessee or prospector to use practically the whole of his capital in development work, avoiding the necessity of purchasing and installing a power plant. If they are successful, and ore is found in paying quantities, making it desirable to purchase the electrical power plant, an option of purchase is exercised which the company granted in the first instance, the rent which has been paid applying on the purchase price. The minimum charge for a 5-H. P. electric hoist is $50 per month, which includes the power used. The plants from 15-H. P. to 30-H. P. range from $65 to $200 per month for rent of motor, etc., and power supplied, depending on tonnage and depth of shaft. The Electric Power Company has upwards of $60,000 worth of machinery rented out, and is continually making additions.

The principal uses of electric power here are for hoisting and compressing air for the operation of machine drills. Air compressing in the large mines consumes about four times the amount of power required in any other service, for the reason that the compressor is worked almost continuously, while the hoist, though it consumes a large amount of power while in use, is in active operation less than one-fourth of the time. Fig. 3 shows a Westinghouse electric motor operating a mine pump.

It is estimated that in the Cripple Creek District the use of electric power as compared with steam power effects a saving of from 15 to 50 per cent., according to the position and circumstances of the mine. This saving is irrespective of reduced wage account, and also irrespective of its greater reliability and convenience, since it is unaffected by frosts. Drills operated directly by electricity without the intervention of an air compressor have been in successful operation elsewhere in Colorado, though no such drills are as yet used in the Cripple Creek District.

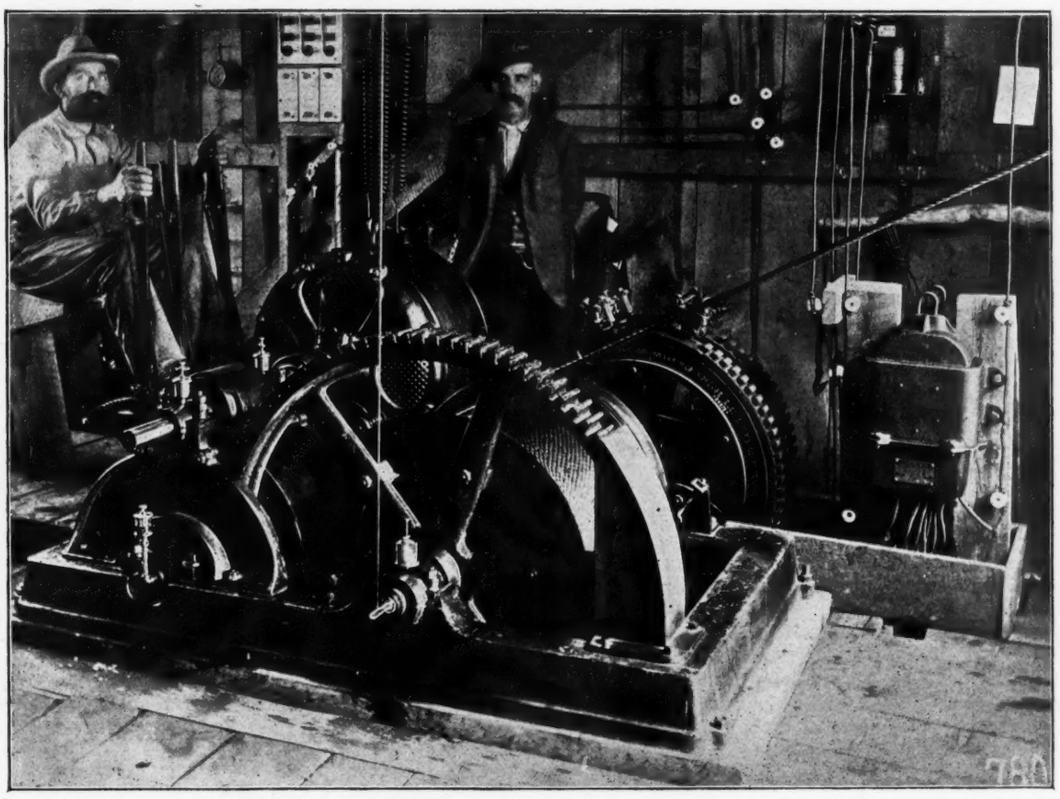


Fig. 2.—Electric Hoist at Wisconsin Mine, Cripple Creek.

RECENT DECISIONS AFFECTING THE MINING INDUSTRY.

Specially Reported for the Engineering and Mining Journal.

JURISDICTION IN EQUITY.—A court of equity has jurisdiction of a suit to enjoin a trespasser from working a mine upon, and removing mineral from, land, the title to which has been adjudicated in favor of the complainant.—Dimick vs. Shaw (94 Federal Reporter, 266); United States Circuit Court of Appeals.

LIMITATION OF NATURAL GAS LEASE.—A lease or license to operate on land for natural gas and petroleum granted for a specified term of years, and as much longer as oil or gas are produced or found in paying quantities on the land, expires at the end of the specified period, unless within that time oil or gas is obtained from the land in the designated quantity.—Northwestern Ohio Natural Gas Company vs. City of Tiffin (54 Northeastern Reporter, 77); Supreme Court of Ohio.

MINERAL CLAIMS ON FORMER INDIAN RESERVATIONS.—Where mineral claims in litigation are located on lands recently a part of an Indian reservation, and which have not been opened to occupation by white people, except for mineral purposes, the actual mineral character of the land involved must be shown, otherwise the court will not adjudicate rights in same in favor of either party.—Durant vs. Corbin (94 Federal Reporter, 383); Circuit Court of the United States.

PROVISION REGARDING DISCOVERY IS MANDATORY.—The provision of the Revised Statutes of the United States (Section 2320), that no location of a mining claim shall be made until the discovery of the vein or lode within the limits of the claim located, is mandatory; and to sustain an adverse claim filed against an application for a patent on a mining claim on the ground of a prior conflicting location, there must be evidence reasonably tending to show such discovery before the prior location was made.—Ledoux vs. Forester (4 Federal Reporter, 601); Circuit Court of the United States.

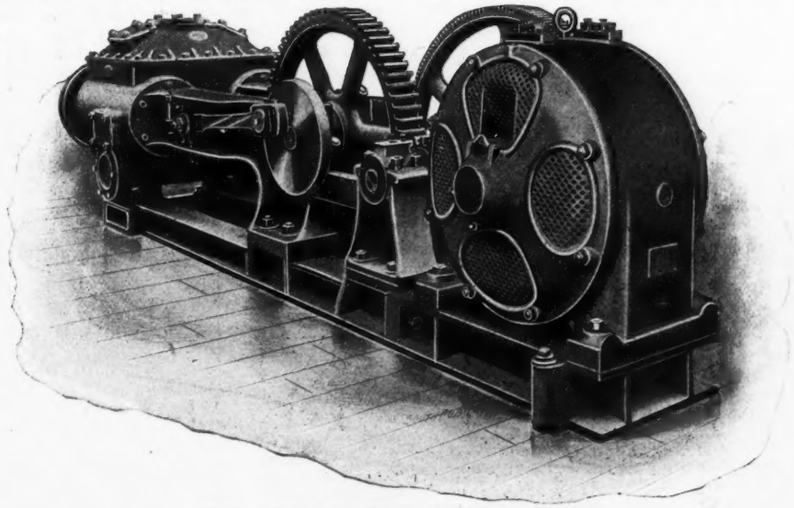


Fig. 3.—Electric Motor Operating Pump.

QUESTIONS AND ANSWERS.

Queries addressed to this department should relate to matters within the special province of this periodical, such as mining, metallurgy, chemistry, geology, mineralogy, machinery, supplies, etc. As it is manifestly impossible to devote space to all the questions and notes constantly received, preference will be given to topics which seem to be of interest to others besides the inquirer. We cannot here undertake to give professional advice on problems requiring special investigation and which should be obtained from a consulting expert. Nor can we undertake to give advice about mining companies or mining stocks. Brief replies to questions will be welcomed from correspondents. While names will not be published, all inquirers should send their names and addresses. Anonymous questions will not be answered. Preference will, of course, always be given to questions submitted by subscribers.—Editor E. & M. J.)

Electric Pumps.—Is electricity used in many places in the United States to operate mine pumps? Has it been successful?—Bolivia.

Answer.—Electric motors are very frequently used to operate pumps. The power is applied from the motor, usually through gearing or belting, to reduce the speed to the desired rate. You will find an example of an electrically driven pump illustrated on another page.

Transmitting Electric Power in Mines.—Is it necessary to cover or insulate the wires used to transmit electric power into a mine?—F. J. P.

Answer.—The necessity of covering or insulating electric wires underground depends entirely on the condition of the mine. In some mines, we believe, the bare copper wire is used and gives no trouble. In others the loss of power would be too great, to say nothing of other risks.

Paying for Gold in Ores.—Is it customary for smelters in the Eastern and Middle States to pay for gold in copper or lead ores which carry from $1 to $2 in gold?—R. T. U.

Answer.—Practically there is no established custom or rule where the amount of gold is as low as you mention. It depends on the agreement made between the smelter and the owner of the ore; also upon the nature of the ore. It is usual for smelters to pay for gold where it runs $2 a ton or over in smelting ores; below that there is no rule.

Kaolin.—What is kaolin and what is it used for? What is the market value of a good quality?—F. W. W.

Answer.—Kaolin is technically a hydrated silicate of alumina. It is a white clay, not plastic, and its value varies according to its freedom from impurities, especially iron oxide and others which stain or color it. The chief use of kaolin is in the manufacture of pottery and china ware; a small quantity is also used in paper making. The price of American kaolin in New York is from $7.50 to $8.50 per short ton. See "The Mineral Industry," Volume VII., pages 148-160.

Air Required in Mines.—How much air must be supplied in mines where no natural ventilation exists?—E. B. W.

Answer.—Most authorities concur in putting the minimum supply of air for a coal mine at 100 cu. ft. per minute for each man employed. Some think this too low. For fiery or gassy mines a larger supply is needed, and usually furnished. Some writers put the amount needed in a fiery mine as high as 500 cu. ft. per man per minute. Much depends on the proper distribution of the air and the arrangement of the currents.

Slipping Wheels.—In hauling coal cars underground with a mine locomotive we have trouble in starting and on grades, owing to the slipping of the wheels. What is the cause of this?—J. T. R.

Answer.—The slipping is probably due largely to wet rails, and in that case can be remedied by the use of sand on the tracks when starting, in the ordinary way. It may be, however, that your engine has not adhesion enough, or is over-cylindered. Have you observed whether there is more slipping when the tank is nearly empty than when it is full? This would give some clue to the cause. Small locomotives, such as are used in mines, are not generally troubled by lack of adhesion, but there may be exceptions.

Graphite.—I notice that the highest market quotation for American graphite is about $30 a ton; and yet I am informed that one of the producers of this commodity mined and prepared graphite last year which averaged in value 10c. a pound. How do you reconcile these facts?—M. A. S.

Answer.—There is no difficulty in reconciling the facts referred to. The price you quote is for an ordinary grade of graphite; the fine crystalline graphite, carefully prepared, would be worth the higher price for special purposes. You can find information about the various grades of graphite, its uses, value, etc., in "The Mineral Industry," Volume VII.

Hoists for Small Mines.—What would you advise as hoisting machinery for a small mine? We have been using a horse-whim, but need something better.—R. N. U.

Answer.—What will serve your purpose best depends somewhat on locality. If you expect to continue work for some time and think you will need additional power, it might be well to put in a small steam engine. Most probably, however, some one of the several excellent patterns of gasoline hoists now to be had would answer your purpose well. The gasoline engine requires less attention and can be used where fuel is so expensive as to make a steam engine very costly to you.

Asphaltum Prices and Varieties.—What is the price per ton in New York of Elaterite? Albertite? Gilsonite? What deleterious substances chiefly militate against their market value? What is the chief constituent upon which the market value is based? What are the comparative analyses of Trinidad Lake asphalt and the above named varieties?—A. C. P.

Answer.—Gilsonite is quoted in New York at present about $65 to $75 a ton. Elaterite and albertite are not on the market in any considerable quantities. To answer all your questions would take too much space in this column; but you will find a full account of the different varieties of asphalt and pitch in "The Mineral Industry," Volume VII., pages 64-88. Elaterite, albertite and gilsonite, or grahamite, come under the head of pitch rather than true asphalt. The impurities which injure their market value are chiefly mechanical, consisting of rock, gravel or similar material mixed with them in mining.

Sodium Sulphate.—I am interested in a large deposit of sodium sulphate which is, by analysis, 95 per cent. pure. Can you tell me anything of the market for this substance? Is it sold directly or how is it used?—F. F. F.

Answer.—Sodium sulphate (natural soda) is marketed sometimes in the form in which it is found, and is sometimes converted into soda ash; occasionally into caustic soda. It finds its chief market among the glass-makers, though some manufacturers of alkali are also buyers. You will find some particulars in relation to it in "The Mineral Industry," Volume VII. The value of a deposit would depend largely on its location, as the product is too low in price to stand heavy transportation charges. Any of the large alkali manufacturers will probably give you bids for a product suitable for their purposes.

Coking Anthracite Coal.—I am informed that there has been invented a method of making coke from anthracite coal. It is called, I believe, the Bauer process. Can you tell me anything about it, or refer me to a description? It ought to be important, for it would permit the use of anthracite in blast furnaces, in countries where bituminous coal is scarce.—A. N. V.

Answer.—The Bauer coke oven, to which you probably refer, was described and illustrated in the "Engineering and Mining Journal," September 9th, 1899, page 310. It was invented by Dr. von Bauer and a number of ovens of this type are in use at the Hannover Colliery, owned by the firm of Fried. Krupp, of Essen, Germany.

Anthracite coal has been extensively used in the United States in making iron in the blast furnaces and is still used to some extent. In earlier times, in fact, a very large proportion of the pig iron produced in this country was made with anthracite as fuel. Its use has declined, not because it was not suitable, but because in nearly all the iron-making districts bituminous coal and coke are much cheaper fuels.

Magnesite.—Where is this mineral produced, what is it worth, and for what purposes is it used?—S.

Answer.—Most of the magnesite consumed in the world comes from Greece, while some is being produced in Germany and California, and deposits are known to exist in New Caledonia, in the Chalk Hills of Salem, in the Presidency of Madras, India, and other places. The crude lump magnesite from Greece is worth $7.50 to $8 per long ton, ex-ship, New York, while the calcined is selling at $15 to $21 per ton, according to quality. The use of magnesite is increasing, especially for lining blast furnaces. For this purpose bricks made of magnesite are used, and these are worth about $185 per thousand. Lately patents have been taken out for making cement. The cement is composed of powdered calcined magnesite mixed with powdered slag, slag wool, scoria, or similar substances. The material can be used either direct or after previous calcining. An improved process for forming articles by moulding magnesite has also been patented. For this purpose calcined powdered magnesite is mixed with water, and after the articles have been moulded they are immersed in carbonic acid gas, thus reconverting the calcined magnesite into solid magnesium carbonate. It is proposed to use magnesite for making fireproof boards for the framework of windows, etc.

A GERMAN COAL SCREEN.—In a screening arrangement, with the screens arranged in pairs, designed at the Maschinenbauanstalt Humboldt, Kalk-am-Rhein, Germany, the screening surface, delivering from right to left, is divided into sections, which alternately turn upwards round spindles, so that, while the screens are at rest, what does not pass through one screen falls from it in a sloping position on to the other screen and vice versa. The motion of the screens is given by cranks keyed diametrically opposite one another, by connecting rods and bent levers keyed on the shafts, which levers are connected alternately by links.

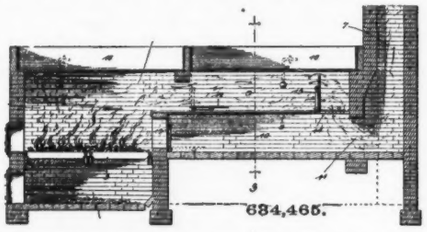
PATENTS RELATING TO MINING AND METALLURGY.

UNITED STATES.

The following is a list of the patents relating to mining and metallurgy and kindred subjects issued by the United States Patent Office. A copy of the specifications of any of these will be mailed by the Scientific Publishing Company upon receipt of 25 cents.

Week Ending October 10th, 1899.

634,465. EVAPORATOR. Thomas Kuzel, Buckholts, Texas. The combination with a casing provided at one end with a fire-box and at the other end with an escape-flue, of a horizontal partition arranged within the casing between the fire-box and the escape-flue and forming upper and lower passages, said horizontal partition being provided at the end contiguous to the escape-flue with a single opening, evaporating-pans forming the tops of the fire-box and said upper passage, upper and lower draft dampers arranged at the forward ends of the upper and lower passages, and a single cut-off damper arranged in operative relation to the single opening in said horizontal partition, said cut-off damper being disposed at the upper side

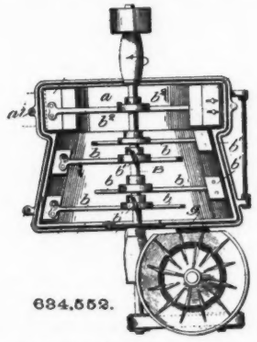


634,465.

of the partition and of a narrower width than the space between the latter and the bottoms of the pans, whereby said cut-off damper when in its vertical or open position, will leave an intervening space between the same and the contiguous pan-bottom, so as to constitute a baffle or throttle over which the products of combustion must pass before entering the opening in the partition.

634,528. PRESS FOR SHAPING METAL. John Lanz, Pittsburg, Pa., assignor to the Carnegie Steel Company, Limited, same place. A shaping-press having a longitudinal die, a reciprocating middle die coacting therewith, two separate outer dies at the sides of the middle die, said outer dies being rigidly connected to each other by cross-arms and coacting with the longitudinal die, and mechanism for reciprocating the outer dies independently of the middle die.

634,552. APPARATUS FOR PREPARING AND FEEDING FUEL. Albert A. Day, New York, N. Y., assignor to the Ideal Fuel Feeder Company, Hempstead, N. Y. The combustion of a circular pulverizing chamber tapering from one end to the other and provided at its narrower end with an annular trough provided with a tangential discharge-passage, of a series of revolving pulverizing-blades in the said pulverizing-chamber, arranged to travel close to the tapering wall thereof, a series of ejecting fan-blades in said annular trough, an inlet for the material to be operated on adjacent to the wider



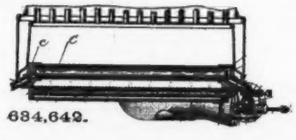
634,552.

end of the pulverizing-chamber, and an air-inlet adjacent to the center of the larger end of said chamber, whereby a current of air will be caused to pass centrally through the pulverizing-chamber carrying with it the pulverized portions of the material and the passage of the larger particles of the material from the inlet end of said chamber toward the said trough will be retarded by said tapering walls.

634,566. ART OF SMELTING ORES. Franklin Ballou, Leadville, Colo. The improvement in smelting metallic ores in stack-furnaces consists in first saturating coke with water, then charging the furnace with the ore to be smelted and with the said saturated coke as fuel, forcing air through the lower part of the charge, and gradually feeding the charge downward to the point where reduction occurs.

634,577. REVOLVING ELEVATOR OR DERRICK-CRANE. Horace Hurlburt, Leavenworth, Kan. A revolving crane, comprising a mast consisting of a stationary lower portion and a rotable upper portion, a walking-beam pivoted to the upper portion and carrying baskets or platforms at its outer ends, a sleeve journaled upon the lower portion of the mast, a sleeve secured upon the upper or removable portion of the mast and provided with handles connected to the first-named sleeve, and a platform secured to the stationary part of the mast below said handles.

634,642. HYDROCARBON BURNER. Henry Howard, Brookline, Mass. A closed distributing chamber having in its top cap-like portions or cells each having in its bottom a grating, to form sunken burners



634,642.

communicating with the chamber, a mixing-chamber communicating with the distributing-chamber and provided with an adjustable air-inlet, and a fuel-vapor inlet opening into the mixing-chamber.

634,600. CAM OR PULLEY FASTENING. William C. Davis, Denver, Colo. In combination, the shaft and the hub mounted thereon, one of said parts having a curved key seat or recess, and a wedge-block

634,660.

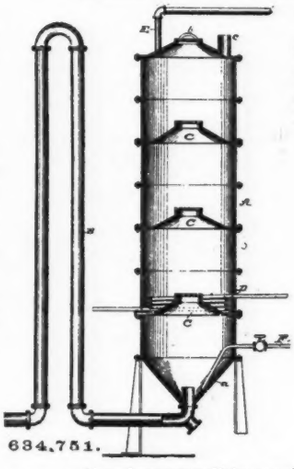
or key seated in said key-seat and having a curved outer face, the other of said parts having an eccentric surface corresponding to the curve of the said outer face of the key.

634,682; 634,683 and 634,684. DUMPING-CAR. Morton G. Bunnell, Chicago, Ill., assignor to Frederick C. Austin, same place. A dumping-car comprising a tilting body supported by a rocker-base upon a suitable supporting-base or truck-frame, and provided with a swinging gate pivotally connected with the body and upheld during the operation of tilting the body by a support having a shifting point of connection with the supporting-base or truck-frame.

634,716. COMPOSITION FOR DETONATORS. George P. Bickford-Smith, Helstone, England. A composition of matter for detonators, consisting of sodium tungstate, precipitated copper, strontium nitrate, antimony sulphide, precipitated silver, potassium chlorate and electrotype plumbago.

634,721. KILN. William Davis-Douglas, Chicago, Ill. The combination, in a kiln, of a firing-chamber box having exterior front flanges, rear braces, interior braces and an interiorly-depended gutter, with a frame-girder, a continuous girder, a brace, a blast-pipe, main exterior walls and interior walls of the hollow casing, the front walls of which bridge the entrance of the firing-chamber and are secured thereto by flanges.

634,751. METHOD OF REFINING CUPRIC-SULPHATE SOLUTIONS. Ottokar Hofmann, Argentine, Kan. A method of eliminating from a solution of cupric sulphate the salts of iron and other metals like arsenic, antimony, nickel and cobalt contained therein as impuri-



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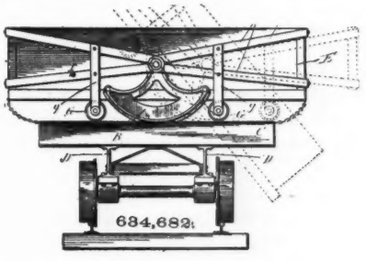

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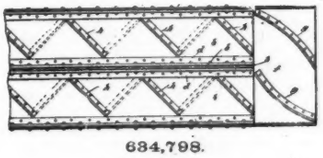


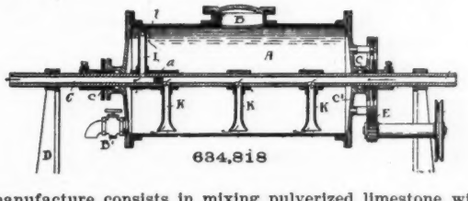
634,798.

ties, by neutralizing and heating the solution, then adding cupric oxide, and injecting air in said cupric sulphate solution in which the cupric oxide or oxidized matte is suspended until the iron and other impurities are precipitated.

634,798. DRIER. John Bishop, Bartow, and Andrew J. Jerguson, Hull, Florida. A drier-drum having a solid partition fitted therein to form the drum into a plurality of passages through which the stock may be passed, and spirally-disposed flanges mounted at the feed end of the drum to advance the stock to the passages in the drum.

634,802. DEVICE FOR OPERATING MINE-SHAFT DOORS. Charles Caldwell, Anaconda, Colo. In a mine-elevator, the combination with a hinged spring-actuated door, of an oscillating rope-wheel, a rope connected therewith and with the door, a cog-wheel carried by said rope-wheel, a rack-bar engaging therewith and means for operating the same by the movement of the elevator-cage.

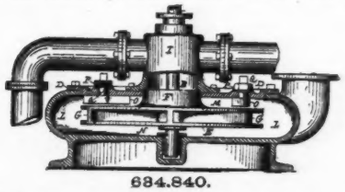
634,818. ART OF MANUFACTURING ASPHALT FROM PETROLEUM RESIDUE. John W. Hayward, Cleveland, Ohio. In the manufacture of artificial asphalt from petroleum residue, the method of



634,818

manufacture consists in mixing pulverized limestone with the petroleum residue while it is in a heated state, and in this state oxidizing the mixture by subjecting it to the diffusion of air.

634,840. CENTRIFUGAL PUMP. Franklin B. Warring, San Jose, Cal., assignor to the Caton's Foundry and Machine Company, same place.



634,840.

In a centrifugal pump, an incased impeller therein and in combination therewith, movable baffling-vanes at the side or sides thereof and means to adjust such vanes from the outside of the pump-casing.

PERSONAL.

Mr. A. S. Wright of Denver has been in Idaho and Montana, looking up mining properties.

Mr. M. I. Newhouse, of London, is investigating Utah mining and smelting conditions.

Mr. W. A. Carlyle, late of the British America Corporation, will leave for Europe early in December.

Mr. W. A. Farish has been examining mines in Calaveras County, California, and is about to take a trip into Arizona.

Col. George W. E. Dorsey has returned to Utah from a recent trip to Boston and New York on mining business.

Mr. George E. Armstrong, of Boston, arrived in Salt Lake City on October 19th. He is interested in a number of Utah mines.

Mr. W. G. Dodd, of the Union Iron Works of San Francisco, has returned to that city from a 4 months' trip to China, Japan and Korea.

Mr. Henry Hornblower is investigating conditions of several Utah mining propositions. He will probably return to Boston next week.

Mr. Samuel Newhouse, after an absence of 4 month, is again in Utah. His trip to England and the Continent greatly improved his health.

Mr. A. Dannenbrink, superintendent and coowner of the Gold Run Group, has been in San Francisco purchasing additional machinery and supplies.

Mr. W. H. Coolidge, of Boston, last week paid his respects to the United States mines at Bingham and the Centennial-Eureka at Tintic. He was in Boston again on October 23d.

Mr. W. S. Keyes has returned to San Francisco from a professional errand in Nevada, and will shortly sail for South America. He plans to be in Butte in December.

Mr. Walter C. Brace, having spent a fortnight on a special quest in Utah, on October 21st, started for the Hailey region, Idaho. He plans to be in Denver in a few days.

Mr. Frederick G. Corning, president of the Exploration Syndicate, left last week for Mexico to examine the mines at Zacatecas and Guanajuato operated by the syndicate.

Mr. C. A. Molson arrived in Salt Lake City October 20th to remain a week. It will be his longest stay since he has had his nominal headquarters there, something over a year.

Mr. E. W. Mellarkey, formerly superintendent of the Golden Cross Mine of San Diego County, Cal., has been engaged by the Yellow Aster Company of Kern County in the same capacity.

Mr. Sidney Fisher, Dominion Minister of Agriculture, and Mr. Hewitt Bostock have been making a tour of the Kootenay District. Mr. Fisher has charge of the mineral exhibits for the Paris Exposition.

Mr. Thomas Ewing, formerly of Leadville, is now manager of the New England Consolidated Mining Company and the Nevada & New England Mining Company, with headquarters at Needles, Cal.

Mr. J. P. Macleod has been appointed director of the Coromandel School of Mines, New Zealand, in the place of Mr. J. M. Maclaren, who has resigned to take a position with an English mining company.

Mr. Ross E. Browne is devoting much time to a study of economic conditions at Tintic, Utah. He is one of the experts on behalf of the Grand Central in its action against the Mammoth trespass.

Mr. F. L. Suttermeister, treasurer of the Spokane Stock Exchange and treasurer of the Mudgett-Routhe Company of Spokane, is at present in New York for the purpose of placing some mining properties.

Mr. Thomas J. Hurley, treasurer of the Exploration Syndicate, has been elected Vice-President of the Briquette Coal Company, whose 200-ton plant has recently begun manufacturing compressed coal at Chicago.

Messrs. E. A. Carter and E. A. Snowman, of Springfield, Mass., have just returned from a trip through the mining regions of Idaho, Oregon and Washington, where they report all kinds of business as very flourishing.

Mr. Charles C. Jones, who has been engaged in gold mining in White County, Ga., is now consulting engineer for Mr. Edward N. Breitung of Marquette, Mich., and has examined some gold properties in Southern Wyoming.

Dr. A. R. Ledoux, of Ledoux & Company, New York City, has just returned from examining some copper deposits in Nova Scotia, and has gone to North Carolina to examine the mines of the Union Copper Mining Company, near Gold Hill.

Mr. Albert Ladd Colby, metallurgical engineer of the Bethlehem Steel Company, South Bethlehem, Pa., has resumed the duties of his position. His friends will be glad to learn that his year's sojourn in the Adirondack woods has completely restored his health.

Mr. Theodore Robinson, superintendent of the Joliet mills of the Illinois Steel Company, will, it is said, be made general manager of the company's Western mills on January 1st. It is reported the mills included are at Joliet, South Chicago, Bridgeport and Bay View.

Mr. Alexander Backus, president of the Vulcan Iron Works of Toledo, O., has returned from an extended trip through the Southern States. He was particularly interested in the phosphate mines about Charleston, S. C., for which the Vulcan Works will furnish 5 new 90-ton steam shovels to dig the rock.

OBITUARY.

Robert De Ronda Armstrong, aged 23 years, died at his home in Philadelphia, Pa., October 22d, of typhoid fever. He was a son of Theodore Armstrong, president of the Pennsylvania Salt Manufacturing Company, and was the youngest but one of 6 children.

Several years ago he left school and entered the laboratory of his father's company. He developed a decided tendency for scientific pursuits, and at the time of his death was one of the most expert practical chemists in the laboratory.

Spencer M. Janney, senior member of the firm of O. S. Janney & Company, died at his residence in Philadelphia, October 13th. He was born in Philadelphia in 1838. Since April, 1890, he was president of the Huntingdon & Broad Top Railroad Company, which occupied the greater part of his time. The past 10 years he was also a director of the Choctaw, Oklahoma & Gulf Railroad, and vice-president of the Colonial Iron Company, the plant of which is located at Riddleburg, Pa. He leaves a widow, daughter and two sons.

Lord Farrer, who died in England on October 12th, was noted as a champion of the gold standard and never missed an opportunity of expressing his views on the subject. He was also a noted upholder of Cobden and Mill in their theories of free trade and was an unrivalled authority on the details of taxation and local government. For many years he was permanent secretary of the Board of Trade under the British Government, and the value of his services to his country in that capacity was incalculable. In politics, though English permanent civil servants are supposed to remain neutral, he was an ardent admirer of Mr. Gladstone and believed thoroughly and conscientiously in home rule both for the Irishman and for the Boer.

Thurlow Washburn, assistant superintendent of the Liberty Bell gold mine of Telluride, Colo., died in a recent severe snow storm in the Rocky Mountains. On Thursday morning, October 12th, he started on horseback from Telluride to inspect certain work being done for the Liberty Bell Company in the mountains. There was a light snow falling in the valley at the time, but as an early visit was of considerable importance, he decided to go ahead as far as he could on horseback and then proceed on foot. The horse came back about noon. The storm increased and continued until Sunday night, but it was supposed Washburn had reached the cabin. On Monday two men arrived from the camp and reported that they had seen nothing of him. Searching parties immediately went out, but not until Wednesday was the body found, a short distance beyond the Virginius pass. He must have been almost within shouting distance of the cabin when struck by a snow slide. His body was under about 5 ft.

Mr. Washburn was about thirty years of age and a graduate of the Massachusetts Institute of Technology, class of '97. Before entering the Institute, he had spent several years in the West, principally in ranching in New Mexico, and had also been occupied in railway work. His first work for the United States & British Columbia Mining Company was in New Mexico, where he examined certain properties in the Black Range, in the autumn of 1898. From there he was transferred to Telluride and first occupied the position of assayer of the Liberty Bell Mine. In the spring of 1899 he was advanced to assistant superintendent, which position he filled until his death. Mr. Washburn's work for his companies was in all respects satisfactory and gave every promise of his rapid advance in his profession. He was conscientious and untiring in the performance of his duties, and, withal, was a good companion and a loyal friend. His earlier years had many hardships and adversities, through which he had borne himself manfully and without complaint. He died as he had lived, fearlessly striving to do his duty.

SOCIETIES AND TECHNICAL SCHOOLS.

Engineers' Society of Western Pennsylvania.—The regular monthly meeting was held October 17th. The principal business of the evening was a discussion of the report of the Smoke Committee. A number of valuable suggestions regarding the special points were made by the members. The report was finally referred back to the committee for action on the suggestions. The report previously published in several papers was merely as a preliminary report.

Engineers' Club of St. Louis.—At the meeting on October 12th 32 members and 12 visitors were present. Mr. M. H. Humphrey read the paper of the evening on "The Design and Construction of a Modern Central Station." A brief resume of the legislation creating the underground conduit system for electric wires was given, and also the conditions influencing the organization of the Imperial Electric Light, Heat and Power Company. The conditions governing the design of the plant were fully shown and afterward a general description given of the various parts of the equipment, both mechanical and electrical, and also of the conduit system and method of distribution. The paper was illustrated by lantern slides. The discussion following was participated in by Messrs. Wilson, Holman, Bryan, Reeves, Borden and Kinealy.

Society of Chemical Industry, New York Section.—The opening meeting was held October 20th. The election of the following officers for the ensuing session was announced: T. J. Parker, chairman; Clifford Richardson, vice-chairman; Dr. H. Schweitzer, secretary, and Mr. R. C. Woodcock, treasurer. The annual report was announced and adopted. Dr. R. W. Moore, the chemist in charge of the U. S. Customs House laboratory, read papers "On the Analysis of Lupuline" and "Some Analyses of Assafoetida." Dr. R. C. Schupphaus described a furnace for the synthesis of new inorganic compounds. The apparatus is ingenius and represents a new departure in electro-chemical methods for the laboratory. The furnace is to be heated from the inside by an incandescent platinum or nickel wire. A practical demonstration of the working of the apparatus concluded Dr. Schupphaus' paper. In the absence of the author Dr. Schweltzer read Mr. Summer's paper on the "Microscopical Identification of Some Useful Fibres." Dr. Chandler gave a description of the career of the famous American electro-chemist, Hamilton Young Castner.

International Mining Congress.—The date of the next meeting at Milwaukee, Wis., has been set for June 19th to 23d, 1900. The local executive committee has organized as follows: Ex-Mayor John C. Koch, chairman; T. J. Sullivan, secretary; J. H. Stover, J. F. Burnham, D. W. Gray, Louis Auer, A. L. Severance, B. T. Leuzarder, E. R. Stillman, Dr. Wilmot Miller, C. J. Dixon, W. G. King and F. T. Terry.

The call states that the congress will deal with subjects pertaining to iron, coal, marble, stone, the various fire clays, asphaltum and all kindred material and metallic interests, as well as gold and silver mining and their by-products, with a view of securing better recognition of the mining industries to bring about needed changes in the mining laws, and the exchange of practical ideas on mining.

The Governor of each State or Territory has been asked to name 30 delegates-at-large, each county commission 5 delegates-at-large, each mayor of city or town 5 delegates-at-large and one additional delegate for each 10,000 of population or fraction thereof. Each mining bureau, mining exchange, real estate exchange, chamber of commerce, board of trade, miners' union, trade and labor assembly and each commercial body may name 5 delegates.

INDUSTRIAL NOTES.

The Heine Safety Boiler Company has begun work on its new plant at Phoenixville, Pa.

A consolidation of all the phosphate mining companies in Tennessee has been proposed.

Dickman & McKenzie, mining engineers and metallurgists of Chicago, Ill., have greatly enlarged their laboratories and experimental plant in the Rookery Building.

The Stedman Foundry and Machine Works of Aurora, Ind., is running its entire plant to its fullest capacity. The company recently shipped a large consignment of machinery to Australia.

The Carp River Furnace at Marquette, Mich., which last spring passed into the hands of Schaffer & Gray, is running again after 8 years' idleness. The output is 50 tons of charcoal pig daily.

The Laidlaw-Dunn-Gordon Company, Cincinnati, O., of the International Steam Pump Company, is about to ship 28 pumps to Shanghai, 42 pumps to Copenhagen, and 3 large pumps to England.

The Q & C Company of New York and Chicago

is filling some good sized foreign orders for cold metal saws, including saws sold through Laing, Wharton & Down, Limited, of London, which will be used in the Midland district of England.

The old Bessemer plant of the Premier Steel Company at Indianapolis, Ind., comprising 2 4-ton basic converters, sold some time since to the W. J. Carlin Company of Pittsburg, is to be repaired and put in operation by a new company.

The Playford Stoker Company, through its Pittsburg, Pa., representative, W. J. Brant, has recently secured another order from the Apollo Iron and Steel Company, Vandergrift, Pa., for 12 250 H.P. stokers, making 24 stokers of this type installed at these works.

A piece of seamless steam pipe 72 in. long, 20 in. internal diameter and ⅝ in. thick was rolled recently in an experimental plant erected at South Bethlehem, Pa., to roll steel tubes from hollow ingots. The mill was built under patents controlled by W. F. Bartlett of Philadelphia.

The E. P. Allis Company of Milwaukee, Wis., will shortly erect two new shops; one will be equipped with the most improved and largest type of machines for manufacturing pumping and blowing engines; in the other the company will manufacture mining and saw mill machinery.

In September the Youngstown, O., works of the National Steel Company made 4,590 heats. The Bessemer converters turned out 46,876 tons of material and small billets, and 20,235 tons into 4 by 4 billets and larger. The total output of the finishing mills was 41,277 tons.

The Pressed Steel Car Company of Pittsburg, Pa., has received an order from the New York Central & Hudson River Railroad for 250 steel flat cars, and another order for 250 steel flat cars from the Michigan Central Railroad. The first lot of steel flat cars made by the Pressed Steel Car Company was shipped to China, for use on the Imperial Railroad of North China.

It has been announced that the bridge combination is completed, and will be in operation by November 1st. The combine includes 35 of the 37 plants in the country, and is capitalized at $67,500,000, of which $33,000,000 is preferred and $34,500,000 common stock. It will control about 98% of the output of the country in bridges. The headquarters will be in New York.

The Glasgow Iron Company of Pottstown, Pa., has completed a shipment of 25,000 steel plates to the Coolgardie Water Supply Company of Australia. The plates are ¾ in. thick, 47¾ in. wide and 28 ft. long, and their aggregate weight is 35,000 tons. The Carnegie Steel Company took a large contract for these plates over a year ago, but about half of the plates were rolled in Pottstown.

Cleveland, O., parties are organizing the Holley Steel Company, with $5,000,000 capital. The proposed site is opposite Fairport, O., on the west side of the mouth of Grand River, where a tract of 1,000 acres is under option. The proposed plant includes a 600-ton blast furnace to make basic iron; 10 50-ton basic open-hearth furnaces, a modern bar mill and a plate mill. The product is to be billets, slabs, bars and plates.

Users of anti-friction metals will be interested in the statement of the Magnolia Metal Company of New York that it has recently completed arrangements whereby the Q & C Company of Chicago and New York becomes exclusive agent for the railroad trade for Magnolia metal for the United States, Mexico and Canada, and the Metal Sales Company of Cleveland, O., has been appointed sole agent for Ohio, Indiana and Michigan.

The settlement of the window-glass wage scale at Pittsburg, Pa., by an advance of 6% enables the workers to earn more wages than ever in the history of the trade. Some of the men blowing double-strength cylinders will average $300 per month. Simon Burns, president of the Workers' Association, had refused to sign the scale, but about 10 of the preceptories, or lodges, informed him that they would break away from the organization if he did not.

The Alabama & Georgia Iron Company recently incorporated under New Jersey laws, has elected the following directors: Eugene Zimmerman, of Cincinnati; Archer Brown, of New York; Charles Ridgley, of Springfield, Ill.; F. M. Jeffery, of East Orange, N. J., and Phillip Isham, of Brooklyn. The company will have its central office at the Empire Building New York City. It is completing repairs on the furnace at Cedartown, Ga. It is also mining and shipping brown ore to other Southern furnaces.

The Carnegie Steel Company, Limited, of Pittsburg, Pa., has placed a contract for the blowing engines for its 2 new blast furnaces at Rankin, and also for the blooming mill engine for the new mill at Duquesne, with the Southwark Foundry and Machine Company of Philadelphia, while the Keystone Bridge Works department will build the bridge across the Monongahela River, to take hot metal from Carrie furnaces to Homestead, and will also build the iron buildings for the new blast furnaces, the blooming mill and the open-hearth plant at Duquesne.

The United States Steel Company, it is reported, is planning to erect a plant near the works of the New England Gas and Coke Company at Everett, Mass. Gas of the New England coke and gas plant is to be utilized. The United States Company is incorporated under the laws of West Virginia. The company is capitalized at $3,000,000, par $5. Its directors are H. B. Whall, also president; Emery M. Law, vice-president of the company; Charles S. Miller, treasurer; William M. Butler, W. E. Pearson, Isaac P. Hutchinson and Henry B. Humphrey. W. W. Montgomery is the general manager. The offices are in Boston.

The Berlin Iron Bridge Company, of East Berlin, Conn., has the contract for erecting at Yonkers, N. Y., a grand stand for the Empire City Trotting Club. The structure will be 100 ft. wide and 400 ft. long. Underneath the main seating deck will be a restaurant, retiring rooms, etc. Some distance above the main seating deck are boxes suspended from roof trusses. The structure is to be fire-proof throughout of frame work steel; floors of brick paving and concrete, the seating deck platform cement and concrete, and the roof covering corrugated iron. This stand will be one of the largest and best equipped structures of its kind ever built.

TRADE CATALOGUES.

The Metropolitan Compound Manufacturing Company of Brooklyn, N. Y., is sending out information concerning the "Metropolitan" boiler compounds that it manufactures. The company states that it analyzes feed water submitted to it, free of cost, and forwards its compounds subject to approval.

The Cling-Surface Manufacturing Company of Buffalo, N. Y., has issued a catalogue calling attention to the merits of the belt dressing that it manufactures. The pamphlet contains a report on tests made with "Cling-Surface" in the engineering laboratory of Cornell University by Prof. R. C. Carpenter. These tests showed that the dressing gave an increased transmitting power to a belt, made the belt soft and pliable, gave an increased arc of contact on the pulley and very much reduced slip. One of the important advantages claimed by the company is that "Cling-Surface" permits belts to be run slack without loss of power.

Catalogue No. 10, published by the Jackson Drill and Manufacturing Company of Denver, Colo., is a 16-page pamphlet with numerous illustrations showing the points of excellence of the Jackson hand power rock drill. The machine is said to be so light and simple that it can be easily handled by one man. The number of blows, their force and length of stroke can be quickly varied, and the machine is stated to work without any jar to the miner. Holes can be spooned and long drills changed without dislining the machine. The company states that the drill has now been on the market 2 years. A long list of references and testimonials is given to substantiate all claims made.

Mining men and others interested in the development of water power will find useful information in the pamphlets issued by the Lombard Water-Wheel Governor Company of Boston, Mass. Catalogue B, 32 pages, gives a general description of the Lombard water wheel governors, a few speed diagrams showing the degree of regulation secured in actual practice, and some testimonials from users of these governors. The company states that the governors are simple, will move the water-gates as rapidly as desirable, and absolutely prevent the water wheels to which they are attached from racing, while they give the closest speed regulation which can be obtained under any given conditions. The company's type B governor is used for turbine wheels, as is also the type C. Type G governors are used at the plant of the Niagara Falls Hydraulic Power and Manufacturing Company at Niagara Falls, N. Y. The Lombard type F governor is especially designed to regulate Pelton and other makes of impulse wheels and for small turbines. This type is described separately in an 8-page pamphlet.

Iron and steel hoisting buckets for handling coal, for mining or for contractors' use are shown in a 155-page catalogue published by the G. L. Stubner Iron Works of Long Island City, N. Y. The company claims that its buckets are durable, easy to fill and quick to dump, of neat designs and of best material. That the company can make some of these claims with confidence is shown by a simple inspection of the numerous cuts in the catalogue, while its claims for using the best material are backed by 25 years' experience. The company also makes steel mine cars and cars for industrial railways. These cars are made in a great variety of patterns, side dump, end dump and bottom dump. They are made for contractors' use; for handling coal, iron ore or phosphate; for gas works or coke ovens, in fact for transporting any substance desired, and are made with the same care as the company's buckets. The company makes also 2 and 3-wheel barrows, in a variety of patterns; tracks for industrial railways; steel wire cloth; also plain and revolving wire screens. In addition the company builds steel chutes of special design for any purpose, manufactures steel pipe and erects steel smoke stacks. At the end of the catalogue are 20 pages of tables giving formulas for strength of beams, strength and weight of chains and wire rope, weight of plate iron and steel, heating efficiency of fuels with a long table of American coals, etc. The catalogue is well printed and contains much of interest.

MACHINERY AND SUPPLIES WANTED.

If any one wanting machinery or supplies of any kind will notify the "Engineering and Mining Journal" what he needs he will be put in communication with the best manufacturers of the same.

We also offer our services to foreign correspondents who desire to purchase American goods, and shall be pleased to furnish them information concerning goods of any kind, and forward them catalogues and discounts of manufacturers in each line.

All these services are rendered gratuitously in the interest of our subscribers and advertisers; the proprietors of the "Engineering and Mining Journal" are not brokers or exporters, nor have they any pecuniary interest in buying and selling goods of any kind.

GENERAL MINING NEWS.

ARIZONA.

Graham County.

Arizona Copper Company.—This company reports for September a production of 777 long tons of black copper. For the 7 months from March 1st to September 30th the total output was 4,859 tons black copper.

Arizona Copper Smelting Company.—This company is running its smelter 1 mile north of Safford. Charles Qualey is general manager.

Mohave County.

(From Our Special Correspondent.)

Arizona & New England Consolidated Mining Company.—This company is doing a large amount of development work on its property known as the Sheeptrail Mines, 6 miles west of the Colorado River, 3 miles northwest of Union Pass. The new stamp mill is on its way to the mine. An assaying outfit has been taken in. Col. Thomas Ewing is manager.

CALIFORNIA.

Amador County.

(From Our Special Correspondent.)

Gover.—At this mine, 2 miles north of Amador City, men are clearing off the buildings preparatory to reopening the old shaft. A 3-compartment shaft is to be sunk on the Fremont Claim. The group includes the Fremont, Loyal, Loyal Lead, Black Hill and North Gover claims. C. E. Purrington is manager.

Gowanus.—This mine, east of the Shenandoah, has been started up again by the High Point Mining Company of Des Moines, Ia. The new hoist has been completed, and sinking has begun. The property was a good producer in early days.

Calaveras County.

(From Our Special Correspondent.)

Melones Mining Company.—The tunnel which is to connect the 120-stamp mill, now in course of erection at Robinsons, with the shaft of the Old Reserve Mine at Carson Hill, is now in 1,300 ft. of the 4,000 ft. required. Two hundred and twenty-six men are busy. Three shifts are at work in the tunnel with compressed air. The mill will be 225 by 320 ft. Work on the cement dam progresses rapidly.

Utica.—About 5 ft. of the north wing of the dam of the Ross Reservoir gave way recently, and half the water escaped down San Antoine Creek, thus depriving this mine at Angels of one of its principal storage reservoirs. The electric light plant of the company has closed down, and repairing the damage has begun. The men employed to clean out the Union Ditch have gone to the mountains, and work will probably be completed by November 1st. A large section of the flumes will be built and other sections repaired before the winter rains set in.

Eldorado County.

The Eldorado County Miners' Association has chosen the following delegates to the annual convention of the California Miners' Association to be held in this city, October 23d: Charles H. Dunton, Thomas Alderson, H. E. Picket, C. H. Weatherwax, D. H. Jackson, W. S. Bacon, E. J. Elzie, Joseph Roylance, B. D. Mason, W. H. Husband, James Richards, H. S. Morey, N. W. Mountain, A. C. Morison, Phil Maul, W. W. Tenney, W. C. Greene, J. F. Limpensel, J. Q. Wrenn, Charles A. Swisler, E. W. Chapman, James Keeley, Chas. Seymour, J. W. Welman.

Fresno County.

(From Our Special Correspondent.)

Ohio State Mining Company.—This company, organized some years ago to work the bed of

the San Jauquin River at the mouth of the Fine Gold Creek, where there was what the miners call a riffle. The scheme was to dam the flow and recover the gold. The venture has been abandoned, the company having sunk $25,000.

Inyo County.

(From Our Special Correspondent.)

Panamint District.—Parties in Los Angeles are opening the World Beater group in Pleasant Canyon, and the Mammoth in Tuber Canyon, under the supervision of Mr. Stebbins. Bryan mills are used. The Anthony property in Pleasant Canyon about 3 miles below the Ratcliff property has been examined by experts said to represent San Francisco parties. The Anthony is said to carry values of about $20 per ton, with an average of 3 ft. of ore. The California Borax Company is putting in some quartz mills at its works for custom milling. A 2-stamp mill has been erected on the Knowles property in the Slate Range on the road from Johannisburg to Ballarat. It is reported that the Searles Borax Works will start up January 1st.

Ratcliff Consolidated Gold Mines, Limited.—This company is opening the Ratcliff Mines in Pleasant Canyon, Panamint Mountains. Six tunnels are in process of being driven, the lowest tunnel having about 1,500 ft. of backs on the dip of the ledge. The 10-stamp mill was running throughout September, and saved on the plates nearly $9 per ton for the month, while the cyanide plant saved $6.29, or a total saving on the ore milled of about $15 per ton. These values are from a ledge that is 6 to 30 ft. wide. The frame for an additional 10 stamps is on the ground. A new tramway of 200 tons daily capacity is to be erected. Thirty-five men are employed, principally on development work. O. O. Howard, Jr., of San Francisco, is chairman.

Yellow Rose of Texas.—This claim, 6 miles southwest from Nash's Store, on Union Creek, has developed a ledge from 18 in. to 9 ft. wide. The only part which has been milled is a ribbon through the vein from 3 to 11 in. wide. Some of this ore packed 16 miles to a wagon road and sent to a smelter, went from $700 to $1,800 per ton. The returns not only paid expenses, but gave a dividend. Ten men are employed. G. L. Carr has purchased the ½ interest owned by Amos Hill.

Madera County.

(From an Occasional Correspondent.)

Macdonald Mines, Limited.—This company has been formed in Rossland, B. C., to acquire and operate the Lilly and North Lilly Gold Mines. The officers of the company are D. J. Macdonald, President; Ross Thompson, Vice-President; Hector McRae, Rossland; Alexander Dick, Consulting Mining Engineer. The head office is at Rossland. According to the projectors, there is a shaft 325 ft., and the ore reserves blocked out amount to $130,000. According to the estimate of the consulting engineer the ore is valued at $10.31 per ton of 2,000 lbs. As yet no mill machinery has been installed. The claims comprise 35 acres, 5 acres of which are said to be a mill site. The vein is a contact, having a granite hanging and a slate foot wall. A stamp mill is about to be installed.

San Luis Obispo County.

(From Our Special Correspondent.)

Rinconda Quicksilver.—This property, 12 miles from Santa Marguerite, owned by T. L. Pedraita, has been bonded by B. M. Newcomb, of Napa Consolidated Quicksilver Company, for $10,000.

Shasta County.

(From Our Special Correspondent.)

Caronda Copper Mining Company.—This company has let a contract for the construction of 350 ft. of tunnel 7 ft. by 5 ft., in their mines at Sunny Hill, at $5 per lineal foot. J. A. Kahny is superintendent of the mine.

Mountain Copper Company.—Arrangements are being made by this company to ventilate its works by forcing air in through 3 ft. iron pipes. Several car-loads of this pipe are on the ground. Some rich ore is said to be coming out of the mines just now.

National.—Owing to lack of water the mill at this mine on Rich Gulch has shut down for the present. The power for the plant is furnished by the Garlick Electric Company's plant near Copley. Development work still continues, 15 men being employed under Superintendent F. X. La Bonte. The cyanide plant owned by Poland & Company, located on the opposite side of the canyon, is connected with the tailings dump by a tramway. Eight thousand tons of tailings are estimated to be on this dump, held by the dam. Three men are employed at this point.

Summit Mine.—A contract was let to L. F. Barlow to make an oblique upraise on the vein in the south level of the lower crosscut tunnel, to meet the upper old crosscut tunnel, some 350 ft. north—a perpendicular distance of 346 ft., and 450 ft. on the slope of the upraise. The design is to intersect the numerous kidneys of rich ochre ore for which this mine is noted. The contractor has installed the necessary machinery and has driven 60 ft. This property is located 7 miles from Ono.

Siskiyou County.

(From Our Special Correspondent.)

Siskiyou Mining Company.—This company, which is working the Mabel Mine on the ridge between Barkhouse on the Klamath River and Scott River, has purchased the Chamberlin & Timmons mill, which will oe set up at the ridge and be used in connection with development work and prospecting, until a larger mill is required. The company has other quarts claims in the vicinity.

Sonoma County.

(From Our Special Correspondent.)

Great Eastern Quicksilver Mining Company.—On the new 550 ft. level of this company's mine a rich body of ore is said to have been opened. The clean-up for September was 240 flasks.

Tuolumne County.

(From Our Special Correspondent.)

Greenhorn Gulch.—This quartz claim, 1 mile southwest of Tuttletown, has been bonded to Hunter & Page of Columbia, Cal. The shaft is down 140 ft. on the vein, which shows fair grade ore.

Rawhide.—The main shaft is down 1,700 ft. and crosscutting will soon begin. Charles Jacobs is now superintendent.

Santa Ysabel.—At this mine at Stent 20 stamps are being added to the milling plant, and a new 150 H.P. hoist, with a gallows frame 84 ft. high, is being constructed. A new air compressor is also being added. The shaft is down 900 ft.

Sunnyside.—This property, 1 mile from Marlow Diggings, is being developed by the owners, the Baker Brothers & Ellis. A 40 ft. prospect shaft on the croppings shows a ledge 2 ft. wide which assays $14 per ton. Men are running a crosscut tunnel to tap the ledge at a depth of 150 ft. This tunnel is in 20 ft.

Yuba County.

(From Our Special Correspondent.)

The following members of the Yuba County Miners' Association have been appointed delegates to attend the annual convention of the California Miners' Association to be held in San Francisco on October 23d: Smartsville—James O'Brien, W. W. Chamberlin, Louis Conrath and Joseph Durfee; Camptonville—W. B. Meek and Frederick Joubert; Browns Valley—T. J. Hillert.

Yuba Power Company.—The wires are nearly up to the dredgers below Oroville. A current of 30,000 volts will be sent over the line and a transformer station will be erected. From that station a line will run to Oroville, 3 miles away. The company now has 3 dynamos, which will give altogether about 2,600 H. P. The ditch is finished and machinery is being put in position in the power house. About 100 men are employed. The ditch gives a head of 600 ft., which can be increased to 900 if necessary.

COLORADO.

Boulder County.

Victoria.—This mine in Gold Hill District is reported sold to a New York company for $80,000. The property belonged to Charles Davis and was bonded to L. R. Johnson, who placed it in New York about a year ago. A second payment, this time of $20,750, has been made.

Clear Creek County.

(From Our Special Correspondent.)

Alturia Mining and Milling Company.—This property at Silver Plume, idle for several years, is to be worked by leasers who have secured the Dunkirk lode that was cut by the Diamond Channel. The vein carries some high grade silver ore.

Covode Mountain Gold Mining, Milling and Townsite Company.—An execution has been issued against the group of 10 claims owned by this company at Empire, to satisfy a judgment secured by Mary E. Barnhardt of Denver for work performed. The sheriff advertises the sale for November 6th.

Newhouse Tunnel.—The management has contracted for 2 miles of 24-in. steel pipe to handle the air from the heading. Samuel Newhouse informed me that the money was up to complete the tunnel. L. Hanchett, Idaho Springs, is manager.

Perkins Tunnel.—C. E. Stubbs, manager, has gone to France to meet the foreign backers of the undertaking. It is understood he is to raise funds to purchase some of the lodes which the tunnel will open at a depth of from 500 to 1,500 ft. The company owns 17 patented claims just west of Idaho Springs.

Gilpin County.

(From Our Special Correspondent.)

Mining Deeds and Transfers.—J. C. Thompson to D. O'Sullivan 1/3 interest in Friend group. A. J. Smith to Gower Mines Syndicate, Limited, Shenandoah lode. E. M. Rogers to E. E. Clark, Aurora lode. Hal Sayre to Wm. B. Stone, Mercer County lode. J. B. Sutton to Catherine Sutton, the West Baldwin lode. J. D. Proud to C. J. Evans ½ interest 11-49, 2-39, 1-15 and 10-30 lodes. W. E. Rammell to C. F. Buck, Silver Coin claim. Geo. Nicolai and L. A. Reilly to Thomas Channing, each a 1/3 interest in Etta and Chaffer lodes.

A Rich Specimen.—W. S. Ward of Denver, Mine Commissioner, this week took from Central City a box containing a chunk of ore 11 by 4 in. square, valued at $1,800, which will be shown at Paris in 1900. The ore came from the Topeka Mine and is owned by Henry P. Lowe of Denver.

Notaway Gold and Copper Gold Mining Company.—This company has bought the Aurora and Great Producer claims, and leased the Baldwin and West Baldwin claims. The Aurora was formerly worked by the Cuba Gold Mining and Milling Company. The shaft is down 450 ft. and a No. 6 Cameron pump is handling the water. The company intends to work the balance of claims, in all about 31 acres, through the Aurora. A. J. Vivian, Central City, is manager.

Ontario-Colorado Gold Mining Company.—In sinking the shaft 275 ft. a good body of ore has been opened up, fully 5 ft. wide. A 30 light dynamo and engine is being installed. Canadian capital is interested, with H. C. Eastman, Central City, manager.

Robert Emmett.—Sinking with air drills has started, to go 200 ft. below 425 ft. About 20 tons of ore are shipped daily. W. H. Nichols, Central City, is manager.

Topeka.—This rich property in Russell district has been sold for $365,000 cash to E. J. H. and A. J. Richardson of Buffalo, N. Y., and R. E. L. Townsend of Pitkin County, Colo. The property was turned over by Henry P. Lowe of Denver to Mr. Townsend, on October 21st. The new owners will put up large shaft buildings and install a 150-H.P. single drum gear hoister, of Webster, Camp & Lane make; 2 4-drill compressors of Norwalk make; 2 100-H.P. boilers, and an electric plant. The shaft, now 938 ft. down, will be sunk deeper. The new owners mean business.

Whiting.—The 200 ft. of caved-in ground at this mine has been cleaned out and bottom reached at a depth of 700 ft. The Gunnell Gold Mining and Milling Company will soon begin shipping quite heavily. Frank C. Young, Central City, is manager.

Lake County.

(From Our Special Correspondent.)

Manganese Ore Shipments.—Shipments for October will be over 2,000 tons to the Illinois Steel Works, and this tonnage will increase in November. Geo. W. Cook this week sent a shipment of 40 cars direct.

Ore Output.—The tonnage of the camp for the past week has averaged 2,200 tons daily of all classes of ores. A year ago for the same week the output was less than 1,700 tons daily.

Coronado Mining Company.—A body of lead sand near the Elk fault promises to develop into a lead ore body. Shipments of iron ore average 20 tons per day.

High Five Mining Company.—Supt. Phillips states he is now shipping very fine lead ore. The development is at the 350 ft. level of the Only Chance mine on Rock Hill. Enough ore is mined to pay running expenses.

Home Mining Company.—The stock of this company has advanced to $12. Some holders expect $15 and $20. Never in the history of the state has any stock taken such a jump. A year ago, when the 50,000 shares were issued, it was very hard to get takers at $1 a share. The Bon Air, the Starr and the Penrose are making a daily output of 200 tons of good carbonate ore and some iron. Leading mining men estimate over $1,000,000 in sight in the Penrose alone. The stock is not listed on any exchange.

Northern.—An immense amount of prospecting is being carried on and shipments from a fine ore body of iron average 75 tons daily. The stuff runs 12 to 15 oz. silver and as high as 50% iron excess.

President.—Connection has been made at the 415 ft. level with the Ballard.

Revenue Combination.—The management has just put in a fine plant of machinery at No. 1 shaft to handle the water that stopped work some weeks ago.

Rubie Leasing Company.—Capital stock is $50,000. Incorporators are J. M. Maxwell, W. A. Moore and Thos. Horgan, who intend resuming work on the Rubie ground near the Louisville.

Superior Group.—Senator Wolcott, S. J. Sullivan and others are putting a splendid plant of machinery on this gold belt proposition, preparatory to sinking the shaft deeper.

Mineral County.

Creede Co-operative Company.—This company is milling 1,200 tons and shipping 700 tons smelting ore per month, making it the second largest shipper in the camp.

North American Gold Dredging Company.—The company has begun the construction of a dam at the mouth of the Swan, near Breckenridge.

Oro Grande.—The ditch at Dillon has been completed and is conveying water to the placer.

Montezuma County.

Sundown.—This mine is working 8 men and shipping 2 or 3 cars of ore a week.

San Juan County.

Crampton-Jones Mining Company.—The assets of this company, which has been operating the property known as the Silver Wing group, will be sold on October 30th to satisfy the debts of the company. Work began more than a year ago, but interested parties in the East declined to advance more money for development and the property, which is equipped with a mill and mining machinery, has been idle several months.

San Miguel County.

Butterfly Mill.—This mill at Ophir is steadily treating ore taken out from the mine by a force of 35 men.

Gold King Mill.—Frank W. Graham has a lease on 10 stamps of the mill, and will put in Wilfley tables to treat the ores from the Alta dump.

Klondike.—This mine at Ophir, which has been idle several months, is soon to resume operations.

Liberty Bell.—The company is experimenting with cyanide on its mill tailings, and is pushing work on the addition of 40 stamps to the mill.

Lydia.—This mine at Ophir has opened an ore body which shows some fine streaks of high grade copper.

Smuggler-Union.—The new mill at Telluride has been enclosed and the machinery is being put in.

Teller County—Cripple Creek.

Auburn Gold Mining and Milling Company.—In the case of John Opie, protesting against issuance of a patent to this company, the secretary of the interior has affirmed the decision of the general land commissioner which dismissed the protest. The ground in dispute was the Marburg Lode.

Dillon Gold Mining Company.—This company has been organized to work the Dillon and Amizett claims on Battle Mountain, near the Portland and the Strong mines. Capital stock, $1,250,000, in shares of $1 each, of which 250,000 shares have been placed in the treasury. The directors are: John W. Graham, John E. Phillips, M. Finnerty, A. Aldrich and W. H. Day, Jr. Mr. M. Finnerty, one of the pioneer miners of Leadville, is president, and W. H. Day, Jr., vice-president.

Isabella Gold Mining Company.—Many rumors are afloat, but nothing definite can be learned. Some assert that another very rich ore shoot, such as was discovered last year, has been uncovered. The only definite information is that there is quite a demand for the stock.

Vindicator Consolidated Gold Mining Company.—The report for the quarter ending September 30th shows the property to be in a very good condition. The ore produced amounted to 7,962.38 tons of ore of the gross value of $240,585 and a net value of $172,566. The total cash receipts were $172,736. The expenditures were as follows: Paid to lessees, $46,974. Mining expenses, $45,437. Total mining expenses for quarter, $92,410. Profit for quarter, $80,326. Permanent equipment expense, $23,336. Balance, $56,990. Cash on hand after payment of last dividend, $40,230. Total balance, $97,220. October dividend, $50,750. Cash in treasury October 21st, $46,470. The company owns property near the Lillie Mine on Bull Hill. F. J. Campbell has charge.

GEORGIA.

White County.

Glen Canyon.—On account of litigation over the title these mines are shut down indefinitely. Mr. Chas. C. Jones. who was trying to open them, had perfected plans for a stamp mill and chlorination plant. The main lode is from 18 to 25 ft. wide and stands nearly vertical between solid walls. The ore is low grade.

IDAHO.

Blaine County.

Montana Dredge Company.—This company, it is stated, will put in dredges next season on ground it has secured on South Boise about 20 miles from Soldier.

Elmore County.

Daisy Mining and Milling Company.—This company owns the Daisy Mine and Mill at Neal. A 450 ft. tunnel cuts the vein, on which a drift runs north 75 ft. and south 125 ft.; from the north drift an upraise is going to the surface. A shaft from the end of the tunnel is down 50 ft., at which level other drifts are being run. The vein is 10 to 15 ft. wide, of which 3 to 6 ft. is good pay ore. The ore going to the mill is stated to average from $25 to $35 gold per ton. The shaft house is equipped with a 12 H.P. gasoline hoist, the fuel for which is stated to cost but $1 per H.P. per month. The mill has 10 stamps with 2 double deck Wilfley tables and power for 10 more stamps, and is stated to save 85% of the values. Owing to an insufficient water supply the mill is running 1 shift, and handling 10 tons daily.

Idaho County.

Florence Gold Dredging Company.—This company, of which J. H. Meyer is president, is erecting a dredge on its ground (about 1,000 acres), near Florence. The company expects to begin dredging next spring. The stockholders are almost exclusively residents of Bucyrus, O., and Placerville, Ida., Messrs. Meyer and Wood being residents of the latter place. Mr. Wood promoted the organization and purchased the ground at Florence. R. C. Beard is superintendent.

Illinois & Idaho Mining and Development Company.—This company, composed of Chicago and Peoria, Ill., men, has located a group of 5 claims on the South Fork of the Clearwater, 5 miles above Harpster. Some of the seams of asbestos are reported to be 30 in. wide, while the fibers are unusually long.

Owyhee County.

Smoke Creek Tunnel Company.—This company is to build a 3-mile flume near Silver City from just below Mahogany Flat. The flume will give about 800 ft. of head.

Shoshone County.

Mining Conditions.—Since January 1st 26 mining companies have been incorporated in the Coeur d'Alenes. Eleven of them were organized prior to the riot April 29th. There are more men at work now than there ever were when the Miners' Union controlled the camp—probabil 200 to 300 more than when the attempt was made to stop operations at the Bunker Hill & Sullivan, last April.

Hunter.—It is again stated that work will soon begin on a new concentrator at Mullan. The tunnel is now in 1,800 ft. and the shaft is down 160 ft. It is said the concentrator will have a capacity of 200 tons daily.

ILLINOIS.

Bureau County.

Spring Valley Coal Company.—This company's force of 2,000 miners at Spring Valley have struck over an alleged refusal of General Manager Dalzell to stop union dues at the company's office.

MARYLAND.

Frederick County.

Blue Mountain Iron and Steel Company.—This company owns the Catoctin iron tract, 60 miles west of Baltimore and near the Western Maryland Railroad, comprising about 10,500 acres of land. There are on it beds of hematite containing from 40 to 50% iron, and also a series of veins of magnetite with but a trace of phosphorus, containing 65 to 69% iron. The improvements consist of 2 furnaces, one for coke of 50 tons daily capacity, and the other a charcoal furnace of 15 tons; a paint mill of 15 tons, etc. The company is organized under Maryland law; capital stock $500,000. The company is to enlarge the furnaces and add a new 150-ton furnace, increase the facilities for mining hematite and magnetic ore, and increase the paint plant to 40 tons per day, etc. The officers of the company are Jerome Keeley of Philadelphia, president; W. B. Price, vice-president; Abraham Sharp, treasurer, and Edward C. Pritchett, secretary, who, with O. A. Kirkland, Ernest Sharp and Charles W. Miller, all of Baltimore, constitute the directors.

Liberty.—Considerable work is being done on this old copper mine near Woodsboro. A large ore crusher has been set up. The mine belongs to Manassas Repp, and is worked by a company under lease.

MICHIGAN.

Copper.

Work on the two new railroads into the southern part of the copper range progresses rapidly. The Duluth, South Shore & Atlantic has 200 to 250 men on the new line of the Mineral Range across to Greenland, and the grading is so far along that it is expected the rails will be laid to the Sturgeon River crossing before Nov. 10th. During the winter the bridge will be built across the Sturgeon. The Copper Range road contractors have made good progress during the summer and fall.

Merryweather.—This property is in section 10, T. 48, R. 43, 2 miles west of Lake Gogebic. A shaft was sunk in 1852 and an adit driven. Some copper was found then.

Peak Copper Company.—This company has been incorporated in Michigan with $2,500,000 capital. The incorporators are: W. L. Laffer, of Cleveland; O. E. Lewis, Boston; H. T. Carleton, Cleveland, and W. I. Prince, Bessemer. Mr. Laffer will be president and Mr. Carleton secretary and treasurer. The company claims to own some land a few miles north of Bessemer, on which 3 amygdaloid and 1 red conglomerate lodes are alleged to be.

MINNESOTA.

(From Our Special Correspondent.)

Owing to the slack demand for grain there is plenty of tonnage for ore, and it is going forward nearly as fast as in September. Probably by the end of October there will have been moved not less than 15,000,000 tons out of the Upper Lakes. The head of the Lake docks are now much more than 1,000,000 tons above last year's record to this date.

Contracts for the Eastern Minnesota's ore dock have been given Foley Brothers. The road has bought some 17,000,000 ft. of fir timber and long stuff, and preliminary work is in progress. It is proposed to have the dock ready for next spring.

The annual report of the Duluth, Missabe & Northern has been made, as follows: Gross earnings—Freight, $2,428,891; passengers, $44,532; other, $40,668; other income, $2,105; total income, $2,477,490; operating expenses, $1,125,175; other, $527,400. Surplus earned, $827,020. Total surplus to date, $1,052,250.

Iron—Mesabi Range.

(From Our Special Correspondent.)

The large stockpile at Canton Mine left from 1894, has all been shipped. At Genoa No. 2 shaft is in use. Elba will make a fine output this year for a new property.

Adams-Roucheleau Exploration.—This exploration, in N. W. of section 25, T. 58, R. 17, has proven a body of excellent ore, though the quantity is unknown. Howe's exploration, adjoining, has shown a deep body of ore.

Biwabik Company.—This company is to let a stripping contract for 1,000,000 cubic yds. of earth, thus connecting the east and west cuts as originally planned. There is very heavy surface, but stripping enables a mine to ship immense quantities of ore with few men. Biwabik will this year ship about 500,000 tons. In the west cut is some ore so hard that the management is considering the question of crushing.

Minnesota Iron Company.—Fayal Mine is very busy. No. 3 stockpile has been shipped and the shovel is loading in the open pit. There are 3 steam shovels and 3 locomotives working in the pit day and night, and the heavy stripping operations of the contractors are also under way. The mine will buy 3 more locomotives for next year.

Oliver Iron Mining Company.—This company now has 1 shovel in the Oliver Mine, which has shipped no ore this present year, and will remove a lot of lean ore that has been in the way and stock it. Both Oliver and Lone Jack will be worked next year.

Spruce Mining Company.—This company has ordered its machinery. The engines and hoists come from Webster, Camp & Lane, and are similar to others on the range. A pair of 5-ton skips will run in balance. There will be steel headworks and steel boiler and engine houses.

Williams.—This mine, now the property of J. M. Thomas, of the Duluth furnace, is shipping steadily. It is an underground property and is being extensively opened. Old Cincinnati, of which it was once a part, is caving in.

Iron—Vermilion Range.

(From Our Special Correspondent.)

Corrigan, McKintrey & Company are exploring for ore in section 11, T. 61, R. 15, south and west of Tower. It is freely asserted that ore lies in this direction, which has been neglected in the past.

Though exploration has been active the past year, few distinctly new deposits have been found. There are indications that much work will be done shortly in one township east of Tower, where the indications are good.

Mahoning Ore and Steel Company.—This company has ceased work in section 36, T. 63, R. 13, where it had a State lease. It has not abandoned its search for a mine in that region, and is examining favorable lands. It has now taken an exploratory option on a part of section 15, T. 62, R. 14, and will work there this winter.

Minnesota Iron Company.—This company is surveying for a road to reach the point near Tower where it has been drilling for a year past. It is still shipping heavily from its Minnesota and Chandler mines. Men at Chandler are now working under a scale of $2.20 for miners, $2 for trammers, and $1.80 and $1.75 respectively for underground and surface labor. The average rate at Chandler in 1892, the highest prior to this year, was $1.81; now it is $2.

Oliver Iron Mining Company.—This company has taken the old Sheridan exploration, in section 5, T. 62, R. 14, and has contracted to mine not less than 100,000 tons a year on a 25c. royalty, if there is ore to be had. Explorations are beginning. It is rumored that explorations in section 30, the McDonald tract, are not turning out as wonderfully rich as has been predicted. The company's mines at Ely, Savoy and Zenith have stopped shipments for the season and are beginning to stockpile ore.

MISSOURI.

Jasper County.

(From Our Special Correspondent.)

Joplin Ore Market.—The shut-down still continues and the directors of the Missouri & Kansas Zinc Miners' Association at their last regular meeting ordered a further suspension of operations until October 30th. A number of

mills that had not heretofore acted with the association shut down last week and full 95% of the plants are now idle. The smelting people scoured the State and bought every pound of zinc ore in sight. The surplus has entirely disappeared and by November 1st the smelters may be in straits for ore. Last week the buyers gladly paid $44 for fancy grade zinc ore, or 50c. above the price they had been paying and $1 above the association price. Lead sold all the week at $27 per 1,000, as for weeks past. During the corresponding week of 1898, top grade zinc ore sold for $34 per ton and lead at $22 per 1,000. The output was greater than last week by 1,524,620 lbs. of zinc and 43,440 lbs. of lead, and the value was greater by $505. As compared with the first 43 weeks of last year, the lead sales fell off to the extent of 5,203,692 lbs., but the zinc sales were greater by 57,326,550 lbs. and the value was greater by $3,745,692. The output was greater than last week by 1,618,470 lbs. of zinc and 134,282 lbs. of lead, and the value was greater by $16,545. Following is the turn in by camps:

	Zinc, lbs.	Lead, lbs.	Value.
Joplin	1,006,870	192,240	$26,353
Carterville	1,054,920	140 900	28,058
Webb City	409,880	32,890	9,086
Orango	325,890	18,990	7,517
Central City — Cave Springs	206,630	8,500	3.992
Belleville	206,100	2,850	4,5 8
Duenweg	29,000	28,950	1,333
South Jackson	238,130	2,530	4.353
Carthage	102,280	....	1,198
Granby	24,400	32,000	4,180
Aurora	884,000	10,000	15,830
Galena—Empire	1,840,600	217,000	38,975
Stotts City	199,880	....	4,198
Dade County	117,850	15,800	3,241
Morgan County	51,520	36,840	2,066
Howell County	205,000	....	3,280
Barry County	241,280	....	3,850
Alba	33,610	....	708
Springfield	44,000	....	880
Lehigh	71,400	....	1,464
Total for week	8,535,240	738,390	165,004
Total 42 weeks.	415,215,960	38,513,488	$9,093,934

Mining Transfers.—There have been a number of small transactions, but the heaviest for some time is the transfer of the E. N. Perry leases at Lone Elm to John M. Scully and J. A. Bowman, representing New York parties, for $100,000. The deal was made by Hugh McIndoe and W. A. Hacker. The leases cover 190 acres and run for a long term of years at a low royalty. The transfer includes the mill and the 3 pumping stations, the largest in the district. The new owners intend to build 2 more mills at once. The sale was one of the least speculative made this year. There has been an attempt by speculators in other parts of the district to create the impression that an epidemic of small pox exists in Joplin. There is no foundation for the stories beyond the fact that the Board of Health of Joplin has established a quarantine station 4 miles south of the city where they have quarantined first and last about 40 suspects, mostly from other towns. The apparent increase in the output over last week is not due to any resumption of operations, but to the fact that the smelting people had to have ore, and as soon as the directors of the producers' association issued the order to continue the shut-down until October 30th there was a wild scurry for ore, and stuff that was so full of mundic that the buyers had refused to look at it for weeks past sold with a rush.

Continental Zinc and Lead Mining and Smelting Company.—It is stated that this company has purchased a 17-year lease of the Silver Moon Mine adjoining the Silver Dick Mine in Oronogo, and has ordered a 125-ton mill, a large pumping plant and air compressor. The mine is opened by 2 shafts each 110 ft. deep connected by a drift.

MONTANA.

Cascade County.

Compromise.—The First National Bank of Great Falls, for $12,500, has sold to L. S. McClure this mine at Neihart. The mine is a south extension of the Moulton and may be worked from the shaft of the Diamond R. Mining Company. The Compromise is known to contain large bodies of concentrating ore.

Granite County.

Flint Creek Electric Power Company.—All the property of this company has been conveyed to the Montana Water, Electric Power and Mining Company. The property is a side holding of the men who are interested in the Granite-Bimetallic Mine, and the Flint Creek Company spent a large amount of money building a dam near the mountain at Flint Creek Falls, 12 miles south of Philipsburg. The transfer price to the new company is put at $572,500. Power may be developed to run the mills at Granite and Rumsey.

Musigbrod Mill.—This mill at Garnet is now equipped with 3 vanners and 2 Wilfley tables. Dr. Musigbrod is proprietor.

Pardee Placer.—Paul A. Fusz, of St. Louis, Mo., through his agent, Frank D. Brown, has purchased for $20,000 the placer claims, mill sites and water rights belonging to J. T. Pardee, of Philipsburg. The properties are located in Basin Gulch. This gives Mr. Fusz the possession of the entire gulch except the holdings near the mouth of the gulch of the Eureka Placer Company, in which are interested District Attorney Rodgers and N. W. McConnell, of Helena; J. C. English, of Anaconda, and W. I. Power, Charles Stingle, Hector McDonald and others, of Philipsburg.

(From Our Special Correspondent.)

Garnet District.—Much activity is shown as the time for opening the custom mill approaches. The Nancy Hanks Mine, which has been the largest shipper, is now practically dependent upon this mill to treat its ore, as no shipping ore is in sight in the mine. Many owners of smaller and less developed properties are ready to send ore to the mill.

Jefferson County.

Mayflower.—A rich strike of ore is reported from this mine at Whitehall. The shaft is down 825 ft. The rich streak is reported to be 2 ft. wide. The ore is being sacked.

Lewis & Clark County.

Montana Mining Company, Limited.—The September output, according to the cabled report, was: Gold, 2,410 oz.; and silver, 13,930 oz., obtained from 4,100 tons of ore crushed in the mills, and 12,407 tons of tailings from the dams brought under treatment. The estimated realizable value of the produce of crushings is $29,700, and of tailings $25,900, a total of $55,600. The treatment of the tailings cost $14,758, the total expenses were $53,800, leaving a net profit of $1,800 for the month.

Peck Concentrator.—This mill at East Helena is to treat ores from the Eureka and other mines in the Rimini District. It has been handling the tailings from the old Alta Mine at Corbin. The 3 mile ditch from Prickly Pear Creek has been covered with boards and earth to prevent it from freezing this winter.

Missoula County.

(From Our Special Correspondent.)

Clinton District.—Pumping machinery and a small hoist have been put in at the Maidy Mine by Messrs. Ranft and Marshall and other Missoula parties, in consideration of a ½ interest in the mine. This development is the deepest in the district and will determine the value of many other properties.

Copper Cliff District.—The principal mine is the Copper Cliff, which was bonded 1 year ago to Messrs. Smith, Frank and others of Butte. From appearances the company will take up the bond, as the developments show satisfactory results. The ore contains much native copper with pockets of copper glance, while the veins are wide.

NEVADA.

Esmeralda County.

(From Our Special Correspondent.)

Holmes Mining Company.—Suit has been filed by A. H. Ricketts of San Francisco, Cal., representing minority shareholders, for an injunction against the proposed sale of the property to a London corporation. W. S. Sutherland, president of the company, has effected a sale of all the interests of the company and several other mines controlled by him at Candelaria, Nev., together with the Candelaria Water Works, to a London corporation for £800,000, the amount stated in Mr. Ricketts' complaint, and suit is brought to protect minor shareholders.

Eureka County.

Eureka Consolidated Mining Company.—At the annual meeting last week the following directors were chosen: William Fries, P. N. Lilienthal, Percy T. Morgan, D. Frederich and H. P. Bush. William Fries was elected president, P. N. Lilienthal vice-president, H. P. Bush secretary and H. C. McTerney superintendent.

Storey County—Comstock Lode.

Consolidated California & Virginia.—At the annual meeting in San Francisco, October 17th, the old board of directors was unanimously re-elected for the ensuing year, as follows: Charles H. Fish, Nat. T. Messer, Herman Zadig, Charles Hirshfeld and Thomas F. Fish. The old officers are reappointed as follows: Charles H. Fish, president; Nat. T. Messer, vice-president; A. W. Havens, secretary; Joseph R. Ryan, superintendent.

Exchequer.—At the annual meeting in San Francisco last week the old officers were re-elected. The directors are: Charles Hirshfeld, Thomas Anderson, Thomas Cole, George C. Sneider and A. Waterman. The officers are: Charles Hirshfeld, president; Thomas Anderson, vice-president; Charles E. Elliot, secretary, and A. C. Hamilton, superintendent.

NEW MEXICO.

Santa Fe County.

Legal Tender.—This mine near Cerillos, on which an English company is reported to have spent $500,000, has been jumped by several Cerrillos miners, who knew that the mine was unpatented and that no assessment work had been done upon it for 2 years.

New Mexico Mining Company.—This is the company that controls much of the mining privileges of the Ortiz grant. It is said that T. A. Edison is interested in this concern, and machinery built according to his ideas will be erected to work placer ground on the grant. Many absurd stories have been published regarding the process to be used.

Ortiz.—The new 10-stamp mill on this old mine is running steadily on gold ore.

Sandia Mining Company.—This company, incorporated by Senator Elkins of West Virginia, Richard Kerens of St. Louis, et al., will work the claims known as the Cunningham and Cunningham Extension, on the Ortiz grant. The property is held under a 99-year lease from the New Mexico Mining Company.

Socorro County.

Confidence.—Development work on the 450 ft. level below the adit is reported to show up large bodies of free milling ore. The level is 700 ft. from surface. The shaft is being sunk and other levels will be started soon at 700 and 900 ft.

Little Fannie.—This mine at Mogollon is being developed by drifts at the 400 ft. level. A hoisting plant of greater capacity has arrived and the Sheridan Mill on Mineral Creek will reduce the ore.

Maud S.—Repairs are being made to the mill and mine at Mogollon. On the 375 ft. level there is a stope of high grade ore ready for extraction. Samples taken from a winze below the 375 ft. level gave good returns in gold and silver.

NORTH CAROLINA.

Chatam County.

(From Our Special Correspondent.)

Snipe Gold Mine.—A new development company is erecting a 10-stamp mill purchased of the Mecklenburg Iron Works. This property is near Chapel Hill, and near the eastern extremity of the gold belt.

Cook County.

(From Our Special Correspondent.)

Johnson Nickel Mining Company.—This company has been prospecting for some 18 months with from 2 to 4 diamond drills. Mr. J. P. Butler claims the company has found iron ore holding manganese and chromium and running about 60% in iron near the surface, but does not give the percentage of sulphur, phosphorus or titanium. He also says that there is no nickel in the county, and that his company was in error when it began work for that mineral.

Davidson County.

(From Our Special Correspondent.)

Silver Hill.—This mine has been in operation about a year under the management of Edward Hopkins, and has been shipping ore and concentrates to England via Wilmington. It is owned by the West Prussian Mining Company.

OHIO.

Harrison County.

Bricker Oil Company.—The owners of the Bricker farm oil well near Cadiz have organized this company with $25,000 capital and will develop the farm and adjoining property. The well is considered the most important strike in Ohio since the Scio pool was discovered. It has been drilled over a week and is flowing freely.

OREGON.

Baker County.

Deer Lodge Mining Company.—This company is opening claims on Rock Creek, 25 miles west of Baker City. R. J. Anderson of Boise, Idaho, is general manager.

Golconda.—This claim, near Baker City, is producing some very rich ore. A 10-stamp is on its way to the property.

Pomeroy Dredger.—This boat is on Burnt River, 35 miles southeast of Baker City. It cost $60,000, has a hull 34 by 100 ft., held in place by 2 spuds 61 ft. long. The 39 buckets have each a capacity of 6½ cu. ft. The capacity of the pump is 8,000 gals. per minute. The dredger has a 24-hour capacity of 2,000 cu. yds., 10 men working in that time. The gravel is reported to average from 20 to 25c. per cu. yd., and the cost of handling it is put at 5c. per cu. yd.

Lane County.

(From Our Special Correspondent.)

A group of 5 claims on the west side of Grizzle Mountain has been sold by Messrs. Klophenstein, Johnson Brothers and Burnes Brothers to the Exploration and Underwriters' Syndicate of London. This is a fine property, the ledge being 8 to 30 ft. wide and running in places 25% copper. Samples of the ore have been taken to London to determine the best method of reduction. The first cash payment has already been made and development work will be carried on this fall. The mine was examined in August by James Chenhall of London, and sold on his report.

PENNSYLVANIA.

Bituminous Coal.

James W. Ellsworth & Company have secured 13,000 acres of coal land near Bentleyville,

Washington County, and will establish a model mining town named Ellsworth. The company says it contemplates marketing 6,000 tons of coal per day during the year 1900.

Northwestern Coal Company.—The strike at Arnot was settled on October 18th, when General Superintendent Fitch and other officials, after conferring with the leaders of the striking miners, decided to grant the men an increase in wages of 10%.

A mass meeting of representative miners of the Irwin district, embracing the Westmoreland Coal Company plants, Export, Larimer, Herminie, Madison and other mines, was held near Larimer, October 21st. It was agreed to demand 60c. a ton over a ¾ in. screen, and a proportionate rate for machine mining and day labor. The operators were given until November 1st to reply. There are 4,000 miners interested.

SOUTH DAKOTA.

Custer County.

(From Our Special Correspondent.)

Crown Hill Mining Company.—Machinery has been ordered for a 50-ton concentrating plant for the Spokane mine, and the shaft will be sunk to the 300 ft. level. At the 200 ft. level a crosscut is said to show ore 25 ft. wide, containing about 30% lead, with some silver. The claim is 5 miles from Keystone.

Lawrence County.

(From Our Special Correspondent.)

Big Four Mining Company.—This company, which has been developing a claim at the mouth of Rutabaga gulch, has found gold ore. A tunnel is in 180 ft. J. W. Dalby, of Iowa, is general superintendent.

Boston-South Dakota Company. — Twenty stamps are dropping in the old Minerva Mill across the gulch from the Esmerelda. The other 20 stamps will be set to work in 2 weeks.

Golden Reward Company.—An experimental plant will soon be erected at the Deadwood & Delaware smelter in Deadwood to treat the slag by a process worked out by General Manager Harris Franklin. It is estimated that the old slag dump runs about 80c. per ton gold. If the plant is a success the old dump will be worked over.

Harrison.—Gold ore is being mined again at this mine, north of Lead, owned by the Kuester Brothers and associates, of Lead. It shipped some wolfram ore during the summer. There are about 200 tons of wolfram ore on the dump.

Hidden Fortune.—Otto Grantz says he received for his carload of ore $79,000, which is by far the largest amount paid for a car in the Black Hills. Another carload will be shipped to Denver next week.

Homestake Mining Company.—This company is tapping the source of Spearfish Creek, in Spearfish canyon, for a better water supply. A tunnel is being driven under a granite dike.

Little Blue.—This mine in the Yellow Creek District, leased to J. P. Laffey and James Julius, is shipping a car-load of ore weekly.

Northwestern Gold and Silver Extraction Company.—This Chicago company has taken the old Kicking Horse mine, at the head of Blacktail gulch, and leased the cyanide plant in the First Ward of Deadwood to treat the ore.

Omega.—Gibbs & Cook have begun shipping ore from this mine, at Terraville, to the Hildebrand stamp mill, at Golden Gate.

Reddy.—This claim, owned by B. E. Salmon & Son, of Lead, has been opened again. There is a 1,200 ft. tunnel, with cross-cuts, and it is believed that the rich shoot of ore encountered in the Hidden Fortune, owned by Otto Grantz, passes through it.

Titanic Mining Company.—The general manager reports work progressing on the new shaft in Carbonate Camp. The company has acquired several more claims.

Pennington County.

(From Our Special Correspondent.)

Apex Mining Company.—This company has men working in the Old Stanby Mine, 1 mile south of Rochford.

Blue Lead.—The tunnel is in 200 ft. It will have to run 800 ft. to cut the main copper ledge. Ten tons of copper ore are shipped from the old dumps each day.

Clover Leaf Mining Company.—This company is to work the Uncle Sam Mine, on Elk Creek. The mine is being cleared out and retimbered. Twenty stamps have been repaired in the mill. The shaft is to be sunk from the 250 ft. level 100 ft. and a drift will be run about 300 ft. to the foot of an incline. There are about 700 ft. of underground workings. There are 3 patented claims in the group. The company has bought 1,000 acres of timber land 6 miles north of the mine; also the Mumford saw mill. Nick Trewick, formerly foreman of the Homestake mines, is general superintendent of the Uncle Sam. The backers are principally Deadwood and Montana men.

Eldorado.—Al Amsbery and associates, of Keystone, have bonded a half interest in this mine, near Hill City, and begun work.

Golden Slipper.—Omaha men have bonded this claim, 4 miles east of Hill City, from M. E. Pinney and associates. The shaft is down to the 300 ft. level. The vein averages about 4 ft. thick. The run on 100 tons of ore from the mine was satisfactory.

Etta.—The parties who leased the Etta, near Keystone, one of the Harney Peak Tin Company's properties, have closed down. Spodumene was mined and shipped.

Highland.—This old mine, near Mystic, has been bonded by William Hall of Colorado Springs, for a Colorado company. There are 6 claims in the group. An incline 45 ft. deep cuts a ledge which gives $3 on the plates and good concentrates. A 10-stamp mill is at the mine.

UTAH.

(From Our Special Correspondent.)

Bullion and Ore Shipments.—During the week ending October 21st there were sent forward from the different smelteries 28 cars, or 1,134,884 lbs., lead-silver bullion; 6 cars, or 302,044 lbs., copper bullion. In same week the ore shipments from the several camps to smelteries outside of the State for treatment were 52 cars, or 2,075,475 lbs.

Cyanide Products.—Corrected September total is $115,400, to which may be added something more than $110,000 for the De La Mar-Mercur plant, and another $125,000 for the De La Mar-Nevada. October consignments marketed in Salt Lake City will about equal those of September.

Iron County.

(From Our Special Correspondent.)

Aggie D.—H. H. McIntire, of Denver, while here last week secured an option on this ground. At 100 level there is a good ore showing.

Gold Hill.—F. W. Millet is showing pieces of quartz hanging together by threads of wire silver, and the rock shows chlorides. Mr. Millet says the bonanza seam is 5 to 6 in. thick.

Juab County.

(From Our Special Correspondent.)

Tintic Shipments.—In the week ending October 21st there were sent out from the 3 shipping rail stations of the district 5 bars of bullion, 68 cars of ore and 3 cars of concentrates, credited as follows: Mammoth, 15 cars ore and 1 car concentrates; Gemini, 11 cars ore; Swansea, 8 cars; Humbug and Uncle Sam, 5 cars; Ajax, 3 cars; Godiva, 3 cars; Grand Central, 3 cars; Sunbeam, 3 cars; May Day, 2 cars; South Swansea, 1 car; Tintic Iron, 14 cars of hematite for flux, and the Sioux mill 2 cars concentrates. Mammoth forwarded 2 bars of bullion, and Sioux mill, 3 bars.

Alaska.—Face of the north drift from the shaft shows a 6-in. seam of galena.

Bullion-Beck.—Shipments are falling off.

Centennial-Eureka.—On October 17th a treatment contract, previously negotiated by Managing Director A. F. Holden and General Superintendent C. E. Allen, with the American Smelting and Refining Company, was approved by W. H. Coolidge for the new Boston owners. By its terms the company is bound to furnish 75,000 tons within 3 years, and the smelter trust is bound to receive 100,000 tons if consigned to it. The treatment charge is not known, though it is fully $3 per ton better for the mine than the present contract. A new Bleickert wire tram is to be put in to connect the shaft house with both railways. This will be 1,800 ft., and the lower terminals will be 400 ft. vertically below the upper ore bins.

Four Aces-South Swansea.—An apex suit is threatened by Four Aces breaking into South Swansea workings.

Grand Central-Mammoth.—At Nephi, on October 23d, Mammoth will endeavor to show why the temporary restraining order preventing its mining beyond its boundary in Grand Central territory should be dissolved. The attorneys for Grand Central are Dickson, Ellis & Ellis and Brown & Henderson, and for Mammoth are Bennett, Harkness, Howat, Bradley & Richards and Zane & Rogers. The experts for plaintiff are O. A. Palmer, Ross E. Browne, A. F. Holden and D. W. Brunton; those for the defendant, W. S. Keyes, R. H. Terhune, E. P. Jennings and D. B. Gillies. On the surface there is less likelihood for a compromise than ever.

May Day.—A 50-h. p. steam hoist and a 5-drill compressor are to be installed as soon as they can be got on the ground.

Piute County.

(From Our Special Correspondent.)

Annie Laurie.—L. C. Huck, of Chicago, and Mr. W. F. Snyder have been investigating conditions under the option held by Mr. P. L. Kimberley, of Sharon, Pa. It is learned that Mr. Huck has taken an interest in this option and is to be the general manager. A force of 15 men or more will be kept at work during the winter. The vein is opened on main tunnel 640 ft. All told, 540 ft. of drifting has been done since Mr. Kimberley started work. The exploration work planned by Messrs. Kimberley, Huck et al. involves an outlay of $28,000.

Salt Lake County.

(From Our Special Correspondent.)

Bingham Copper and Gold.—At a meeting of the directors, in Boston, on October 20th, it was decided to construct the proposed smeltery.

Boston Consolidated.—George E. Armstrong, of Boston, one of the directors, has been investigating conditions at this end.

Dalton & Lark.—The Whittemore option was not taken up, and the property reverts to the company. Exploration carried on under the option caused an expenditure of $30,000.

Davis & Gebhart.—Judge W. A. Sherman and Clarence K. McCormick have a bond on this tract, south of the Highland Boy. They show some good galena. Development is being advanced.

Utah Consolidated.—In No. 7 tunnel the ledge was cut late in September. Superintendent Channing says the values here are most satisfactory.

Summit County.

(From Our Special Correspondent.)

Anchor.—The new concentrating plant will go into commission on or about November 1st. It will handle from 80 to 100 tons of milling ore daily.

Park City Shipments.—In the week of October 2st there were marketed through the Mackintosh sampler all told 2,616,160 lbs. of smelter products, made up as follows: Silver King, crude, 705,970 lbs.; concentrates, 344,350 lbs. Ontario, crude, 848,100 lbs.; Daly-West, crude, 643,800 lbs., and Feeney, concentrates, 73,940 lbs.

WASHINGTON.

Ferry County—Republic.

(From Our Special Correspondent.)

Black Tail.—A drift is being run on a cross vein of very hard white quartz 5 to 6 ft. wide, supposed to be a lateral.

Bodie.—The north drift on the 250 ft. level was driven 100 ft. ond discontinued. The ore at the breast is 4½ ft. wide and assays about $14 per ton. Sinking is resumed. The shaft bottom is in quartz 3 ft. wide.

Lone Pine.—The management expects to cut the second vein very soon.

Lucky.—The shaft is down 94 ft. and will be sunk to 115 ft. before drifting. The vein looks well.

Number One Consolidated.—This group shows a vein opened by 2 shafts and several open cuts. The vein varies from 1 or 2 to 6 or 8 ft. wide. The assays have run from a trace of gold up to as high as $10. The deepest shaft is down 55 ft., but a tunnel is in 120 ft. which will tap the vein about 100 ft. farther in.

WEST VIRGINIA.

Southern Oil Company.—This company, of which T. N. Barnsdall is president and principal stockholder, has sold 1,000 bbls. of daily production, a large acreage, and more than 50 wells, located in Wood and Ritchie counties, West Va., and Monroe county, Ohio. The price paid was $750,000. The purchasers were Boston men. Mr. Barnsdall retains his Whisky Run, Ogden, Archer's Forks and part of his Jackson Ridge property.

Wheeling Consolidated Coal Company.—This company, which was incorporated some time ago under the laws of West Virginia, with a capital of $5,000,000, has organized by electing the following officers and directors: David Bennett King, of New York, president; J. A. Miller, of Wheeling, vice-president; John M. Birch, of Wheeling, secretary and treasurer. The directorate includes the above and H. Hearne, of Wheeling; William M. Dunlop, West Alexander, Pa.; J. T. Noble, Claysville, Pa.; George W. Darr, Pittsburg; T. M. T. McKennan, Pittsburg; J. V. Thompson, Uniontown. The company is a consolidation of 4 bituminous mines near Wheeling, with about 40,000 acres of coal lands. These mines are the Elm Grove, Richland, Glendale and Bog's Run. At present their combined output is about 1,100 or 1,200 tons daily. The new company, however, it is claimed, will work on a more extensive scale and increase the output to about 15,000 tons daily. Of this is is expected to market about 8,000 tons daily in Wheeling. The company's lands front on the Ohio River, and are also on the lines of the "Panhandle" system and the Pittsburg Division of the Baltimore & Ohio.

FOREIGN MINING NEWS.

AFRICA.

Transvaal.

Ferreira.—A cablegram has been received in London from the head office at Johannesburg,

to the following effect: "Acting under the advice of the Mining Commissioner, the directors authorized the manager to pay off all round, and the works were closed on October 2d. The Government immediately took possession, in order to recommence work. The board of directors protested; the Government insisted upon the reopening of the mine. The board of directors take full control over the works. Mr. Walker, Government Inspector of Mines, has been appointed acting manager. He must consult Mr. Hoffmann, manager of the Geldenhuis Estate and Gold Mining Company, Limited, before doing anything. The mine, mill, and cyanide works have been in full operation since October 6th. The mine must be worked as heretofore. The Government pays all expenses, appropriates bullion and profits in the interests of shareholders, the board of directors working conjointly with Government. By this arrangement have obtained protection from Government."

ASIA.

India—Mysore.

The gold production from the mines of the Colar gold-field in September was 38,812 oz., being 232 oz. less than in August, but 4,297 oz. more than in September, 1898. For the nine months ending September 30th the total was 324,617 oz. gold, against 310,809 oz. in 1898, and 285,303 oz. in 1897.

AUSTRALASIA.

New South Wales.

Broken Hill Proprietary Company.—This company reports for the 4 weeks ending October 11th a total output from the refinery of 3,201 tons lead, 56 tons hard (antimonial) lead, 124,780 oz. fine silver and 239 oz. fine gold.

New Zealand.

(From Our Special Correspondent.)

August Output.—The gold yield for August was 38,531 oz., valued at £143,464 ($717,320), towards which Auckland contributed £64,520 ($322,600), Otago £46,400 ($232,000), Greymouth and Westport (West Coast), £27,041 ($135,205), and other districts, £5,503 ($27,515). This is an increase of £9,932 ($49,660) over August, 1898; and for 8 months increase over the corresponding period of 1898 of £262,450 ($1,312,250), or over 30%.

The August yield of silver was 25,229 oz., valued at £2,968 ($14,840), all from the Auckland gold field.

Queensland.

Mount Morgan Gold Mining Company.—For the month of September this company reports 19,463 tons ore treated by chlorination. The result was 14,526 oz. gold; the average being 0.73 oz. gold to the ton.

Western Australia.

The Mines Department reports the total production of gold for July and the seven months ending July 31st as follows, in ounces:

	July.	Seven mos.
Alluvial gold	4,285	27,828
Dollied specimens	855	7,526
From ore crushed	142,073	789,987
Totals	147,213	825,341

The ore reported crushed was 107,621 tons in July and 644,062 tons for the 7 months. The gold entered for export for the 7 months was 792,409 oz.; sent to Perth Mint, 55,319 oz. The Mint at Perth was opened in May.

CANADA.

British Columbia—West Kootenay District.

(From Our Special Correspondent.)

Rossland Ore Shipments.—The output from January 1st to October 19th amounts to about 132,000 tons, valued at $2,240,000 gross.

Black Prince.—The Hall Mines have bonded this claim on Boulder Creek.

British Columbia Copper Company.—According to Paul Johnson the copper smelter which is to be erected at Greenwood under his supervision, and of which he will take charge, will have an initial capacity of 300 tons. This capacity can be enlarged to 1,800 tons, as there will be room for 6 furnaces each of 300 tons. The excavations for the smelter have been completed and retaining walls are started, and offices have been erected. The smelter will blow in about April 1st. Mr. Johnson states that Boundary Creek ores have steadily improved with depth, and that recently some high grade ore has been discovered and he is satisfied that the ore can be treated with a large margin of profit. The ores when combined seem to be self-fluxing, as all carry the necessary amount of silica, together with a large percentage of lime and iron.

Center Star.—The Blackstock-Gooderam syndicate are offering to the public 1,320,000 shares, at $1.50 each, War Eagle shareholders receiving the preference. The present capital stock is 3,300,000 shares of the par value of $1 each. The syndicate paid $1,980,000 for the mine and the present owners have expended about $100,000 on development and improvements. The workings comprise about 8,000 ft. of drifting. The main shaft is down 500 ft. and nearly 10,000 tons of ore have been shipped from Rossland by the present management.

Le Roi.—The management is erecting a new tram, about 150 ft. west of the old one. All the pay ore on the old dump is to be shipped to the Northport smelter. Recently an accident to the old tram stopped ore shipments.

New St. Elmo.—The compressor plant at this Rossland claim is being installed. Development work is in progress.

Queen Bess.—This Slocan company has ordered from the Rand Drill Company 1 machine drill and a boiler, and for the Duncan mines, owned by the same company, 4 drills. The Duncan is in Lardeau Division.

War Eagle.—An accident to the Pelton wheel at Bonnington Falls stopped operations at the hoist recently. The management is preparing to be independent of electrical power, though electrical machinery may not be given up altogether. The company paid its monthly dividend of $26,250 on Oct. 16, making a total of $262,500 since the purchase and an aggregate of dividends amounting to $440,250 since the mine was opened.

British Columbia—Caribou District.

Caribou Hydraulic Company.—According to an Ashcroft despatch, on the night of October 18th at this mine near Quesnelle Forks, the safe in the company's office was blown open and $50,000 was stolen.

Nova Scotia—Cape Breton.

Premier Tripolite Company.—This company has recently bought $25,000 worth of machinery, including conveyors, dryers, etc., the dryers being furnished by the F. D. Cummer & Son Company of Cleveland, O. The machinery has been installed in the company's tripoli deposits at Munro's Point, St. Ann's, Cape Breton, and the output of tripoli is to be increased.

Ontario—Clarendon County.

Cleveland-Deloro Mining Company.—This company is working a stamp mill on the Gatling property at Deloro on an arsenical gold ore with high gold values. W. A. Hungerford is superintendent.

Ontario—Lake of the Woods District.

Olive.—The mill capacity is being doubled. Fifteen more stamps, with Frue vanners and an ore crusher, arrived at Rat Portage recently and are now being put in the mill. The Jenckes Machine Company of Sherbrooke, Que., furnished the outfit.

Ontario—Sudbury District.

(From Our Special Correspondent.)

The action entered by Major R. G. Leckie against Rinaldo McConnell in connection with the sale of the latter's nickel property in Denison, to Ludwig Mond, of London, England, came up for hearing at Toronto this week. The court ordered the lis pendens or caution put by Leckie on the property in the Land Titles office to be taken off. The sale to Mond and his associates will be carried out. The price to be paid is $200,000 on very short terms.

The Great Lakes Copper Company is still doing some development work on the nickel property that has been secured by the local agents of the company in Blezard Township, about 1 mile north of the Stobie Mine. The reduction plant erected by Prof. Graf to test his new process on these nickel-copper ores closed down after the first trial. The bottom of the furnaces, it is said, would not stand the heat. Prof Graf left for Boston some weeks ago and is not back yet.

Yukon District.

New Mining Regulations.—A Dominion order-in-council has been approved by the Governor-General repealing section 39 of the regulations governing placer mining, and substituting the following:

"Any free miner having duly located and recorded a claim shall be entitled to hold it for a period of 1 year from the recording of the same, and thence from year to year by re-recording of the same, provided, however, that during each year and each succeeding year such free miner shall do, or cause to be done, work on the claim itself to the value of $200 and shall satisfy the mining recorder that such work has been done by an affidavit of the free miner, corroborated by 2 reliable and disinterested witnesses setting out a detailed statement of the work done, and shall obtain from the mining recorder a certificate of such work having been done, for which a fee of $2 will be charged.

"Provided that all work done outside of a mining claim with intent to work the same shall, if such work has direct relation, and be in direct proximity to the claim, be deemed, if to the satisfaction of a responsible government officer, to be work done on the claim for the purpose of this section.

"Provided, further, that any free miner or company of free miners holding adjoining claims not exceeding eight in number may, notwithstanding anything in the regulations to the contrary, work the same in partnership under the provisions of the regulations upon filing a notice of their intention with the mining recorder and upon obtaining a certificate from him, for which a fee of $2 will be charged. This certificate will entitle the holder thereof to perform on any one or more of such claims all the work required to entitle him or them to a certificate of work for each claim so held by him or them. If such work shall not be done, or if such certificate shall not be so obtained and recorded in each and every year, the claim shall be deemed abandoned.

"The holder of a claim may at his option in lieu of the work required to be done thereon each year, pay to the mining recorder in whose office the claim is recorded the sum of $200 for each of the first 3 years, but for the fourth and succeeding years the sum of $400 must be paid in lieu of work done on the location or in connection therewith, as provided by the regulations. A certificate from the mining recorder that such payment has been made shall relieve the person making it from the necessity of doing any work during the year.

"If at the end of the year the annual amount of work has not been performed, nor the commutation fee paid, as above stated, the sum of $250 shall be charged against the claim, and the said amount shall constitute a lien on such claim, and no transfer of title to such claim shall be recorded until the said amount of $250 shall have been paid to the mining recorder.

"If the lien is not discharged by payment at the expiration of 3 months from the end of the year, the claim shall revert to the crown, and may be disposed of as the minister of interior may direct.

"No claim forfeited from whatever cause shall be re-located, but every such claim shall revert to the crown to be disposed of as the minister of the interior shall direct."

CUBA.

Cuba Steel Company.—The company has contracted with the Pennsylvania Steel Company of Harrisburg, Pa., for the erection of a steel ore pier 1,000 ft. long, to be built 30 miles west of Santiago. This contract also includes the erection of all the bridges between the pier and the ore mines, a distance of 10 miles. The Pennsylvania company will send its own men to do the work, which will start soon.

MEXICO.

Chihuahua.

(From Our Special Correspondent.)

Batopilas Mining Company.—This company's mines at Batopilas are said, on what I consider good authority, to be under option to an English syndicate. Mr. John B. Farish of Denver, Colo., with a number of assistants, has been at the mines for several weeks making a careful examination of the property. The terms of the proposed transfer are not made public. A. R. Shepherd is general manager.

COAL TRADE REVIEW.

New York. Oct. 27.

Anthracite.

The market prospect for anthracite coal continues excellent all over the country, and the collieries are working nearer full time than in many years. Some complaint is heard of a short water supply at the collieries in the northern fields, and there are indications that labor agitators will do their best before long to secure considerable advances in the price paid for mining or a reduction in the price of powder and supplies. The chief restriction on production, however, will be car supply. It is stated that the companies are mining at the rate of 4,500,000 tons for October, so it is not possible that this year's output will be 47,000,000 tons or over.

Trade in the West is good. Receipts at Duluth have been heavy and the outlook is that there will be coal enough on hand by the close of navigation. Chicago receipts by lake are still insuffcient. Nut coal continues scarce and hard to get; it is being mixed with stove and pea sizes by sellers, to help out. Consumers may complain, but there is no relief for them. In the East there is more activity in buying. Consumers are scared at probable higher prices and are laying in supplies much more liberally than is usual at this time of the year. High ocean freights and the difficulty of getting vessels are making things lively for dealers at the smaller ports beyond the Cape who may happen to have short supplies. The advance in quotations is becoming general, and selling prices are nearer quotations than at any time this year. It is safe to say that no company is agreeing to sell stove or nut coal for less than $4 New York. We quote for free burning white ash: Stove, $4@$4.25; nut, $4@$4.25; egg, $3.75@$3.85; broken, $3.40@$3.50. The steam sizes are in better demand, thanks to the scarcity of bituminous. They are also in better supply. We quote pea $2.25@$2.50; buckwheat, $1.85@$2.25; rice, $1.50@$1.70; all sizes f. o. b. New York. Nut coal, as last winter, is the size in most demand.

Bituminous.

There is no change in the general condition of the seaboard bituminous trade. The demand for coal is as fierce as it has been, and producers are unable to meet the orders pouring

in. More attention is now being paid to next year's business, and it is pretty clear that coal is going to be decidedly higher in 1900. The miners will undoubtedly demand better wages, the coal roads will want higher freight rates and producers will want better profits. As a result, it is altogether probable that when contracts for 1900 delivery are closed the price for good coal at the shipping ports will be a great deal nearer $2 than $1.60.

In the far East the shoal water ports continue to clamor for coal. Producers are doing their best to supply customers there, but vessels are hard to get. Along Long Island Sound and up the Hudson River coal is wanted badly. New York Harbor trade is large and would be larger if consumers had the say. In all rail territory consumers are objecting to the restrictions put upon them by producers who must get coal forward to the far East, this in spite of the fact that consumers in all-rail territory have had the best of the situation all summer.

Transportation from mines to tide is good. Car supply, though still insufficient, shows improvement. It is better on the Pennsylvania than on any of the other roads, and the "Pennsy" is certainly getting a lot of service out of its rolling stock. In the seaboard vessel market rates are very firm and vessels extremely scarce. Light winds and fogs along shore hamper the movements of the coal-carrying fleet. We quote current rates from Philadelphia of $1.15 to Providence, New Bedford and the Sound and $1.35 to Boston, Salem and Portland.

Birmingham, Ala. Oct. 23.

The coal market could hardly be better, but the production is not as great as it would be were railroad cars not so scarce. The railroad officials claim they are doing all they can for cars, but they are falling behind their supply of the summer This is partly accounted for by the heavy movement of cotton. Assistant State Mine Inspector Culverhouse states that some mines in Walker County are not working more than half time on account of this scarcity, and that several mines in Jefferson County are not working much more than three-quarter time for the same reason.

This matter is likely to be serious when cold weather sets in. A better price is obtained, and orders which will run some time are being accepted. There is some labor trouble in Walker County, near Carbon Hill, where about 300 miners are out, demanding an advance of 5c. on the ton and recognition for the United Mine Workers.

The miners last Saturday received their pay for September. At every place it was the largest amount paid out for one month in years. The miners are getting maximum prices, and the contract does not expire until July 1, 1900.

Chicago. Oct. 24.

(From Our Special Correspondent.)

Anthracite coal continues in good demand, with prices very firm. Warmer weather has reduced demand somewhat, and affords some opportunity for agents to accumulate coal. Chestnut coal has been a rarity for months, and the supply is almost exhausted. Shipments of hard coal to the city continue light, owing to the inability of agents to charter boats and cars. Anthracite circular prices are $5.50 for broken and $5.75 for egge, stove and chestnut.

Bituminous coal is in demand, with but little in sight, coal on the tracks and in yards of this city being in small supply. The scarcity of transportation facilities prevents large quantities of coal being shipped here, though the mines are turning out large quantities. Prices are firm.

Coke is in demand, but in small supply. Foundries are suffering for want of coke, and some are already running on short time. Prices are paid beyond the circular.

Pittsburg. Oct. 25.

(From Our Special Correspondent.)

Coal.—The only change in prices during the week were for coal at retail. The retailers formed a combination and advanced rates from 1 to 2c. a bu. The price was made the same for 100 bu. or more. Heretofore owners of large buildings who used a large quantity each day were given a rebate of about 2c. a bu. Now the rates are 7c. a bu. without regard to quantity. The Pittsburg Coal Company, the combination of railroad coal operators, is now doing business on its own account, the syndicate that was in charge while the deal was being perfected having turned over everything. No advance in prices is expected until the expiration of existing contracts. No new contracts are being taken at less than $1 a ton for 1¼ in. coal. The river coal combination is preparing to increase rates as soon as there is a rise in the river, and the coal now loaded is sent to the lower ports.

Connellsvi Coke.—The production of coke last week was greater than the previous week, and the shipments show a surprising increase. The scarcity of cars during the past few months has depleted the stock at many of the furnaces until a coke famine is threatened. During the past week a number of box cars were run into the region and with these additional facilities the shipments were increased nearly 10,000 tons over the previous week. No time was lost in loading these cars and the coke was sent to the furnaces, where it was most urgently needed. At the Sterling plant 44 old ovens have been repaired and will be put in operation the latter part of this week or early next week. The demand for coke has wiped out the lines between foundry and furnace coke and the same price rules for both. There are 19,109 ovens in the region, of which 18,236 are active and 873 are idle. The estimated production for the week was 194,171 tons as compared with 190,298 tons the week previous. The shipments aggregated 10,277 cars distributed as follows: To Pittsburg and river tipples, 3,330 cars; to points west of Pittsburg, 5,271 cars; to points east of Connellsville, 1,676 cars. This is a remarkable increase of 447 cars over the previous week.

SLATE TRADE REVIEW.

New York. Oct. 27.

Business is quiet, and prices are easier. Shipments from Slatington and Walnutport, Pa., during the week ending October 19th were 4,917 squares roofing, 192 cases school slates, and 849 crates blackboards. The total shipments from January 1st are 178,296 squares roofing, 15,375 cases school slates, and 20,606 crates blackboards. The movement from Danielsville, Pa., for the week ending October 19th consisted of 1,005 squares roofing, 100 crates blackboards, and 338 pieces flagging.

Export business is limited, owing to the excessively high freight rates. Recently a quantity of roofing slate was shipped to London at 20s. ($4.80) as against 12s. 6d. ($3) a short time ago. At the same time freight room is very scarce owing to the Transvaal war.

The list of prices per square for No. 1 slate standard brand f. o. b. at quarries in carload lots is given below:

Prices of Roofing Slate.

Size, Inches	Monson or Br'nville.	Bangor.	Bangor Ribbon.	Alb'n, or Jackson Bangor.	Lehigh.	Peach Bottom.	Sea Gr'n.	Unfad'g Green.	Red.
	$	$	$	$	$	$	$	$	$
24 x 14	6.10	3.50	3.00	3.35	3.25	5.10	3.00	.....	.....
24 x 12	6.60	3.50	3.00	3.35	3.25	5.25	3.00	3.75	.....
22 x 12	6.60	3.50	3.25	3.50		5.25	3.00	3.75	.....
22 x 11	6.50	3.75	3.25	3.50	3.35	5.25	3.00	4.00	.....
20 x 12	6 90	3.75	.....	3 50	3.35	5.25	3.00	3.75	.....
20 x 11	6.80	.....	.....	4.00	3.35	5.25	3.00	.....	.....
20 x 10	6.80	4.50	3.50	4.00	3.60	5.35	3.25	4.25	9@10
18 x 12	6.80	3 75	.....	3.50	....	5.25	3.00	3.50	.....
18 x 11	7.00	.....	.....	.....	.....	...	3.00	3.75	.....
18 x 10	7.20	4.50	3.50	4.00	3.60	5.35	3.25	4.00	9@10
18 x 9	7.10	4.50	3.50	4.00	3.60	5.35	3 00	4 25	9@10
16 x 12	6.80	3.75	.....	3.50	.....	...	2.85	3.50	.....
16 x 10	7.10	4.25	3.50	4.00	3.60	5 25	2.85	4.00	9@10
16 x 9	7.00	4.25	.....	4.00	3.60	5.35	2.85	4.25	9@10
16 x 8	7.20	4 50	3.50	4.00	3.60	5.35	2.85	4 25	9@10
14 x 10	6 60	3.75	3.25	3.35	....	5 25	2.75	3.75	9@10
14 x 9	6.50	.....	.....	.....	.....	....	2.75	3.75	9@10
14 x 8	6 60	3.75	3.25	3.35	3.25	5.10	2.75	4.25	9@10
14 x 7	6.40	3.75	3.25	3.35	3.25	5.10	2.50	4.25	9@10
12 x 10	5.80	....	.....	....	.....	...	2.50	3.25	.....
12 x 9	5.60	.....	.....	.....	.....	...	2.50	3.25	.....
12 x 8	5.50	3.50	.....	3.35	3.25	4 85	2.50	3.50	8¼@8¾
12 x 7	5.00	3.25	.....	3.35	3.25	4.85	2.50	3.50	8¼@8¾
12 x 6	4.80	3 25	.....	3 35	...	4.75	.....	3 50	8¼@8¾

A square of slate is 100 sq. ft. as laid on the roof.

In Brownville and Monson delivery quotations can be hat somewhat lower than above, which is also true of other brands. No. 1 Bangor are 50c. extra when full 3/16 in. Intermediate sea green, $2.25@$2.45 per square, according to size.

CHEMICALS AND MINERALS

(For further prices of chemicals, minerals and rare elements, see page 540.)

New York. Oct. 27.

Acids.—Oxalic was booked for next year at $5.75 per 100 lbs. Sulphuric is light in stock. Blue vitriol is easier, but business is small. Muriatic and nitric are in good request. The exports of blue vitriol from the United Kingdom in the nine months ending September 30th amounted to 36,957 long tons, valued at £776,680 ($3,883,400), against 49,715 tons, £799,083 ($3,995,415) in the same time last year.

Quotations are in large lots delivered in New York and vicinity, per 100 lbs. unless otherwise specified.

Acetic, No 8.	$1.62½@1.75	Nitric, 38°	$4.12½@4.62½
Blue Vitriol, best	5.00@5 25	Nitric, 40°	4.37½@ 4.50
Chamber, 50°, ton.	11.50@12.00	Nitric, 42°	4.75@ 5.00
Muriatic, 18°.	1.20@ 1.25	Oxalic	5.75@ 6.00
Muriatic, 20°.	1.25@ 1.30	Sulphuric, 66°	1.10@ 1.15
Muriatic, 22°.	1.30@ 1.40	Sulphuric, 60°	80@1.00
Nitric, 36°	3.87½@4.12½	Sulphurous, 100% SO_2 anhydrous.	8.00@10.00

Brimstone.—Recent and expected arrivals are the steamers "Lord Warwick," with 1,100 tons brimstone; "Pohattan," 2,000 tons; "Robinia" for Baltimore, 2,500 tons; "Gladiolas," for Portland, 2,500 tons; "James Turpie," 2,000 tons; "Victorian," 1,500 tons; "Alcasian," 1.000 tons; total, 12,600 tons. Spot best unmixed seconds are quoted at $22 per ton, and shipments from $21 up. Best thirds are $2 less per ton. In the 9 months ending September 30th, the United Kingdom imported 16,508 long tons of brimstone, against 13,757 tons in 1898.

Heavy Chemicals.—Sales of domestic high test alkali are reported here up to $1 per 100 lbs., and foreign at 87½c. from dock. Domestic high test caustic soda contracted for next year at $1.80@$1.85 per 100 lbs. f. o. b. works, and for 1901 at slightly higher figures, while spot goods are scarce. Sal soda meets with keen competition among domestic makers, and sales were made at 50c. f. o. b. works. Concentrated sal soda, however, is higher. Bleaching powder is being delivered sparingly, owing to the scarcity of spot supplies. Some sales of prime bleach have been made at $2 per 100 lbs. immediate delivery, and $1.75 is quoted for the remainder of the year. Imports since Monday were 440 casks and 225 bbls. bleaching powder, and receipts of domestic goods were 350 sacks, 350 bbls. and 100 drums soda ash. Chlorate of potash shows large sales for next year's delivery at quotations.

Articles.	Domestic.		Foreign.
	F.o.b. Works.	In New York.	In New York.
Alkali, in bags.	77½@82½c.	85@90c.	85@87½c.
Caustic Soda, high test	$1.77½@1.82½	$1.85@$1.90	$1.85@1.87½
98% powd.	.....	3 12½@ 3.50	.....
60@74% powd.	.....	2.50@ 2.62½	.....
Sal Soda	50@55c.	.....	65½@67½
" conc.	1.25@1.75	.....	1.60@1.65
Bicarb. Soda	1.12½@1.25	.....	2.12½@2.25
" " extra	3.25@3.50	.....	
Bleach. Pdr., Eng. prime	.....	.....	1.75@1.85
other br'nds.	.....	.....	1.60@1.75
Chl. Pot. cryst	.....	8.00	9.00
" powd.	.....	9.25	9.50

Prices are generally for large quantities, and in many cases depend upon make, test and package.

Pyrites.—Business is moderate and prices are steady. In the 9 months ending September 30th the United Kingdom imported 517,476 long tons of iron and copper pyrites, against 502,055 tons in 1898.

We quote American pyrites as follows: Mineral City, Va., lump ores, $3.25 per long ton (basis 42%), and fines $3; Charlemont, Mass., lump, $5.50, and fines $4.75; Pilley's Island, lump, $6.50, and fines $4.50 per long ton, delivered in New York. Spanish pyrites, 12@14c. per unit, according to percentage of sulphur contents, delivered ex-ship New York and other Atlantic ports. Spanish pyrites contain from 46% to 51% of sulphur; American, 42% to 44%, and Pilley's Island, N. F., 50%.

Fertilizing Chemicals.—More buying of ammoniates by the South. Sulphate of ammonia is easier, November and December shipments being quoted at $2.87½ per 100 lbs., and spot $2.90@$2.95, although some dealers hold for $3 and upward. In September the shipments of sulphate of ammonia to this country from the United Kingdom amounted to 665 long tons, valued at £8,249 ($41,245), making approximately 5,645 tons for the 9 months of this year. Imports at New York this week were only 220 bags sulphate of ammonia, 200 tons and 750 bags manure salt, 500 bags sulphate of potash, and 2,500 bags sulphate of potash and 2,500 bags muriate of potash.

Nitrate of Soda.—The spot market is firm. The "Queen Margaret" arrived at this port with 20,637 bags, and sailings in November are approximately 79,000 bags. Spot is quote at $1.70 per 100 lbs., and shipments $1.65@$1.67½ according to position. The world's consumption in the 7 months ending July 31st was 1,023,076 long tons, showing an increase of 91,757 tons over the corresponding period in 1898. The production, on the other hand, was approximately 82,784 tons less than last year.

Phosphates.—Demand is good at home, but the foreign market is quiet, owing to high prices and the scarcity of freight room resulting from the Transvaal war. Shipments in September included were 14,358 long tons crude rock from Charleston, S. C., to domestic ports; 6,219 tons from Beaufort; 1,132 tons from Brunswick, 13,891 tons from Fernandina; 17,694 tons from Pensacola, and 4,932 tons from Punta Gorda—all foreign. These shipments, with the exception of Charleston and Pensacola, were less than in August. The imports of phosphate rock into the United Kingdom in the 9 months ending September 30th were 306,250 long tons, against 255,439 tons in the same time last year.

Latest quotations for the European market, c. i. f. United Kingdom or North Sea ports, are as follows: Florida high grade rock (77@80%), 9d. ($14 per long ton); Florida pebble (68@73%), 7¼d. ($10.50 per ton); Florida Peace River (58@63%), 7d. ($8.40 per ton); Tennessee high grade rock (78@80%), 7¾d. ($12 per ton); Algerian (63@70%). rock. 7¼d. ($9.38 per ton), and 58@63% rock, 6¾d. ($7.80 per ton).

We quote: Florida high grade, 75@80% rock, $9.50@$10 per long ton f. o. b. Fernandina. The freight rate to New York is about $2 per ton. Florida land pebble, 68@73%, $7@$7.50 per ton, delivered in New York. Florida, Peace River, rock, 58@63%, $4.50 per ton f. o. b. Punta Gorda. South Carolina crude rock, $4.25@$4.50; hot-air

dried, $4.50@$5 per long ton f. o. b. Fetteressa, S. C. Tennessee, 78% rock, $3.80@$4 f. o. b. Mt. Pleasant, and 75% rock, $2.75@$3 f. o. b. High grade Tennessee rock, ex-vessel New York, $9@$10 per ton. Hickman County blue-gray rock, 65%, and not over 3% iron and alumina, $2.50@$2.75 per ton f. o. b. mines. The difference in the price of this phosphate and Florida high grade is owing to the higher percentage of iron and alumina in the Tennessee rock. Concentrated phosphates, 13@15% av. P_2O_5 60c. per unit at sellers' works. Acid phosphates, $6.25 per ton for 14% in bulk f. o. b. Charleston, S. C.

Liverpool. Oct. 18.

(Special Report of Joseph P. Brunner & Co.)

The market for heavy chemicals is in a strong position, and although quotations are nominally unchanged, a further upward movement is not unlikely, as makers find a difficulty in keeping pace with the demand. Soda ash is in moderate supply, and range for tierces is about as follows: Leblanc ash, 48%, £4 10s.@£4 15s.; 58%, £4 15s.@£5 per ton net cash. Ammonia ash, 48%, £4 5s.@£4 15s.; 58%, £4 10s.@£4 15s. per ton net cash. Bags are 5s. per ton under price for tierces. Special quotations for United States and Continent. Soda crystals find a ready sale, and for most markets £3 2s. 6d. per ton, less 5%, is quoted for barrels, or 7s. less for bags, with special terms for a few favored markets. Caustic soda strong and inclined to stiffen, there being little offering for prompt delivery. We quote present range for any position as follows: 60%, £7 10s; 70%, £8 10s.; 74%, £9; 76%, £9 5s.@£9 10s. per ton net cash.

Bleaching powder is shipping freely, and £5 10s.@£5 15s. per ton net cash is quoted for hardwood packages as to destination.

Chlorate of potash is unsettled at nominally about 3½@3⅝d. per lb. for crystals and 3⅝@3¾d. per lb. for powdered as to quantity. A number of inquiries are reported for 1900 delivery, sellers ideas for which are about ¼d. per lb. under spot figures, but it is difficult to get any reliable quotations.

Bicarb. soda is unchanged and selling at varying prices according to market, quotations ranging from £5 5s. to £6 15s. per ton less 2½% for the finest quality in 1 cwt. kegs, with usual allowances for larger packages.

Sulphate of ammonia dull and lower, at about £11 8s. 9d.@£11 12s. 6d. per ton, less 2½% for good gray, 24@25% in double bags f. o. b. here as to quality.

Nitrate of soda is firm at £7 17s. 6d.@£8 2s. 6d. per ton, less 2½% for double bags f. o. b. here as to quality and quantity.

IRON MARKET REVIEW.

NEW YORK, Oct. 27, 1899.

Pig Iron Production and Furnaces in Blast.

Fuel used	Week ending Oct. 28, 1898		Week ending Oct. 27, 1899.		From Jan., '98.	From Jan., '99.
	F'ces.	Tons.	F'ces.	Tons.	Tons.	Tons.
An' racite	27	19,925	45	39,150	946,101	1,386,046
Coke.....	145	190,850	196	238,550	8,381,057	9,337,645
Charcoal.	20	5,975	25	6,450	253,784	238,469
Totals..	192	216,750	266	281,150	9,580,942	10,962,160

The iron market continues strong and active, with no signs of reaction. We have noted some doubt in certain quarters as to next year's business, but it has little or no effect on the general course of the trade.

In raw material foundry iron continues in demand, and orders are rather hard to place. The Bessemer Association has placed a large tonnage this week for next year's delivery, at prices which are not made public. It is said, however, that $24 a ton was accepted, though the Association wishes $25 to be considered the standard price. Steel billets are unchanged and the demand still continues.

A feature of the week has been the placing of very large orders for steel rails, the business aggregating not far from 500,000 tons. Among large orders made public are 35,000 tons for the New York Central; 40,000 tons for the Baltimore & Ohio; 40,000 tons for the Chicago, Milwaukee & St. Paul; 40,000 tons for the Chicago & Northwestern; 40,000 tons for the Union Pacific; 50,000 tons for the Illinois Central; 105,000 tons for the Pennsylvania Railroad. The business is divided among the Carnegie, the Federal, the Cambria and the Pennsylvania steel companies. Most of it is understood to have been placed at about $33 per ton at mill. With these orders the rail mills have now on hand orders for future delivery reaching a total of about 1,500,000 tons.

The ore rates for next year and the quantity of Lake Superior ores which it will be possible to place at the Lake Erie ports before the rapidly approaching close of navigation are topics of very great interest to the trade. High prices are being paid for ores by those who need supplies not covered by season contracts. It looks, however, as if there would be vessels enough in commission next season to bring down all the ore needed.

Birmingham, Ala. Oct. 23.

(From Our Special Correspondent.)

Inquiry for pig iron is very active, and the market continues strong and firm. Quotations have not advanced any recently, though indications point to a little raise by November 1st, when freight rates on lines north of the Ohio River will advance pig iron rates 50c. on the ton. All export iron for Atlantic and Gulf ports will be advanced 50c. on the ton. Purchasers who were hesitating, expecting a fall in prices, have entered the market again. One of the larger companies in 2 days during this week received inquiry for 35,000 tons of iron. The furnaces are pretty well sold up, and so far the output has not been increased materially.

A furnace at Ironton of the Alabama Consolidated Coal and Iron Company will blow in this week, while the same company states that within 30 days its furnace at Gadsden will be ready.

The sale of the Jenifer furnace, near Talladega, with a large tract of brown ore lands, to Fred Hoffman, of Milwaukee, and W. H. Weller, of Gadsden, Ala., formerly owners of the Hoffman, Billings & Weller Manufacturing Company's pipe plant at Gadsden, now worked by the Central Foundry Company, is announced. The furnace is a good one, but has not been in blast since 1895. It will be in blast as soon as repaired, and will make charcoal iron.

The warrant yards in Alabama, on October 1st, according to a local furnaceman, contained 15,700 tons of pig iron, of which 2,100 was charcoal iron.

The following quotations are given: No. 1 foundry, $18.50@$19; No. 2 foundry, $17.75@$18.50; No. 3 foundry, $16.75@$17.50; No. 4 foundry, $16@$16.50; gray forge, $16@$16.25; No. 1 soft, $18.50@$19; No. 2 soft, $17.75@$18.50.

At the steel mill work is being rushed. More machinery was received by express during the past week from Pennsylvania. There is no telling just when the plant will start. The management announces that all contracts will be met. Orders are on hand for delivery of steel before December.

The Dimmick Pipe Company, which will erect a $150,000 plant, has decided to locate at North Birmingham, close to the Sloss Iron and Steel Company's North Birmingham furnaces, and near the old Henderson steel plant. Twenty acres of land will be occupied.

The Bessemer Mill Company has been formed by Messrs. Robert Jemison, Morris Adler, Edgar Adler and Albert Adler to buy and work rolling mills, iron furnaces, mine ore and coal, and do a general iron and steel business. The company controls the Bessemer rolling mill and will put it in operation. The mill has been idle several years.

Buffalo, N. Y. Oct. 24

(Special Report of Rogers, Brown & Co.)

The much looked for curtailment of consumption, on account of high price of pig iron, has not yet made its appearance, at least not in this vicinity. In the past week not a few have found their increasing business necessitates further purchase. In some other cases low grade iron has been bought to take the place of scrap, as that now quite popular article is becoming very scarce. The increasing business being handled by foundries throughout this section, naturally requiring more scrap, together with the rapid advances in pig iron, have had the natural effect on the scrap market. It is now as scarce and almost as high priced as low grade pig. This, in turn, has a stimulating effect on the foundry iron market. We quote for cash f. o. b. cars Buffalo: No. 1 strong foundry coke iron, Lake Superior ore, $24@$24,50; No. 2 strong foundry coke iron, Lake Superior ore, $23.50@$24; Ohio strong softener No. 1, $23.50@$24; Ohio strong softener No. 2, $23@$23.50; Jackson County Silvery No. 1, $31; Southern soft No. 1, $23.50; Southern soft No. 2, $22.50; Lake Superior charcoal, $24@$25; coke malleable, $24@$24.50.

Cleveland, O. Oct. 24.

(From Our Special Correspondent.)

Iron Ore.—There are already numerous indications that the ore carrying rates on the lakes recently agreed upon for the next season will not be adhered to very long by vessel-men. The Escanaba ore shippers have already announced that they desire no more tonnage at $1 per ton for next year, saying that they have already contracted for all they can carry at that rate. This, of course, means that they certainly expect an advance in rates. The shippers from Marquette are still taking tonnage at $1.10 per ton, but the announcement that they desire no more is expected daily. On November 1st the carrying season from Duluth for the present year will close, though some ore will still arrive from Escanaba. The rate fixed from Duluth for next season is $1.25 per ton. The rates now paid are $1.75 from Duluth, $1.60 from Marquette and $1.35 from Escanaba.

The following are figures obtained for ore in sales as they are made at present: Specular and magnetic ores, Bessemer quality, $6@$6.25; specular and magnetic ores, non-Bessemer, $5; red hematite ores, Bessemer quality, $5@$5.25; red hematite ores, non-Bessemer quality, $4@$4.50.

Pig Iron.—At a meeting of the Bessemer Association held yesterday, 60,000 tons of that iron were sold for delivery the first quarter of next year. The members of the association are keeping the strictest secrecy as to the price paid or as to the names of the purchasers, but it was said that the price secured was $24 per ton. The reason given for the secrecy is that the Association has been holding out for $25 and not having been able to secure that price for the present lot, did not wish to prejudice future sales. It is said that by the sale of this large amount of Bessemer the entire output of the first quarter of next year has been covered by contract. It was also stated that the light railroad rails had advanced $2 per ton. The price has been $40 and it is thought that within the next few days the prices of all finished products will advance correspondingly. None of the quotations for iron are quite as low as were reported a week ago.

The following are the present quotations for pig iron f. o. b. Cleveland: Lake Superior charcoal, $25; Bessemer, $24; No. 1 foundry, $23; No. 2, $22.50; No. 1 Ohio Scotch, $22; No. 2, $21.50; gray forge, $19.

Philadelphia, Oct. 26.

(From Our Special Correspondent.)

Nothing very extraordinary has developed within the past few days beyond the heavy purchases of steel rails.

Pig Iron.—The market is quiet, relatively speaking. There are of course a good many inquiries for No. 2 foundry and basic iron, but very little material has been sold for prompt delivery or delivery that is regarded as prompt. No. 1 foundry is quoted at $24, although more money than that has been paid. No. 2 is quoted at $23, although it has likewise brought higher prices. Gray forge has sold as low down as $19.50. There are quite a number of inquiries in the market to-day for gray forge due to the fact that several large orders for freight cars have been placed. There was quite an excitement in the market to-day and yesterday over the rumors of two or three large railroad companies placing orders for steel cars. The New York Central is mentioned.

Bar Iron.—An immense amount of bar iron will shortly be called for to meet car-building requirements, but nothing definite can be stated this week. The mills are far oversold.

Nails.—The demand for nails is falling off, and factories are hurrying to accumulate stock.

Sheet Iron.—All reports to-day from sheet iron makers show that prices are high, and much business could be booked if the factories were disposed to take it. No. 28 is 3.80c., and an advance to 4c. is probable.

Pipes and Tubes.—The only reports to-day are that there is an extraordinary demand for tubes and that prices have been marked up, although how much it is not possible to say.

Plates.—Plate iron quotations remain about where they were, although buyers who have bought within the past few days say they have paid considerably above the market price for good deliveries. Boiler plate is very scarce, and there are quite a number of buyers in the market who are unable to secure any attention from manufacturers. Tank is asked for to-day, but quotations are withheld.

Structural Material.—Three or four buyers for structural material for office building work are endeavoring to place orders to-day, and the aggregate will amount to 2,500 to 2,800 tons.

Merchant Steel.—The consumption of merchant steel in New England is increasing, and agents representing manufacturers are endeavoring to place orders to suit their customers. The difficulty is that steel is wanted for delivery January and December, and manufacturers are not in a position to furnish it.

Old Iron Rails.—The old iron rail market is much quieter this week, although orders have not been filled. Holders simply refuse to sell, and until they make up their minds to do so there will not be much to report.

Pittsburg. Oct. 25.

(From Our Special Correspondent.)

The most important change in the iron and steel market was the stiffening of Bessemer pig iron prices. For small lots and for immediate delivery as high as $25.25 has been paid. It is certain that no pig iron can be bought for this year's shipment at less than $25. During the week it is estimated that fully 100,000 tons of Bessemer pig iron have been sold for delivery next year at $23@$23.50 in the Valleys with the corresponding advance of 75c. in Pittsburg. The output of the furnaces for the first six months of next year is about sold up. No contracts will be made for delivery earlier than May, 1900, and large orders are only being taken for the second half of next year. Immediate shipments of all grades of iron and steel, as usual, command a high premium over the quoted prices. Foundry iron has also advanced during the

week. A report, which, if true, means that high prices will rule for steel all of next year and removes all fear of a slump, is that the steel rail pool has been revived and it has not yet been denied. The fact that railroad companies have been placing orders for rails next year strengthens the report. It is said that contracts for rails have been made that aggregate 1,500,000 tons for delivery in 1900. The orders are to be filled by the 5 companies in the arrangement as follows: The Carnegie Steel Company, the Cambria Iron Company, The Federal Steel Company, the Pennsylvania Steel Company and the Lackawanna Iron and Steel Company. The companies placing the orders earlier than usual were given a special rate of $33 a ton. The price was then raised by the rail makers as follows: For standard sections, in lots from 100 to 200 tons, $37; car-load lots, $38, and less than car-load lots, $40. All the prices quoted are f. o. b. Pittsburgh mills. These orders for rails are for the United States only and do not include orders received from foreign countries. The capacity of the country for Bessemer steel is about 6,500,000 tons and the combined order for rails will consume about one-fourth of the output and will, no doubt, necessitate increasing the capacity of the mills to meet the probable increased demand for steel. It is possible that the former rail pool has not been reorganized, but it is certain that the rail-making concerns have entered into an agreement on prices. One of the peculiar features of the steel market is the fact that steel bars that usually sell at about $1.50 a ton higher than Bessemer billets are to be had at $37 a ton, while billets are now quoted at $40@$41.

Pig Iron.—A few small sales of Bessemer pig iron were recorded during the week at $25.25, Pittsburg. None can be had for this year at less than $25. This is an advance over last week of 75c. to 1. Foundry iron has also gone up and prices are quoted as follows: No. 1, $24@$24.50; No. 2, $23@$23.50; No. 3, $22@$22.50.

Steel.—There were no sales of any consequence during the week, but the price of billets is higher and $40@$41 is asked. Basic open-hearth remains at $50 and slabs are still quoted at $41. No change occurred in the prices of plates.

Sheets.—The market is firmer, but there was no change in prices. Nothing has yet been done towards the completion of the proposed combination of the sheet interests and it is reported that the project has been abandoned. Manufacturers decline to discuss the subject.

Ferro-manganese.—The demand for 80% domestic continues and prices are firmer and $125 is being paid.

New York. Oct. 27.

The demand for iron and steel is generally just a trifle easier, though some products command higher prices. Foreign orders continue to come in. We note shipments of machine tools valued at $60,000, to Manchester, Eng.; shipments of machine tools, engines and machinery to South America, including $13,000 worth of electrical machinery, $53,000 worth of manufactured iron, $15,200 worth of steel wire, $22,000 worth of boiler tubes and $100,000 worth of agricultural machinery to Argentina.

Pig Iron.—There has been a slight let up in inquiries for delivery next year, and present buying is largely of a hand-to-mouth order, with a fair volume of business. We quote for delivery within a few months Northern brands, tidewater delivery: No. 1 X foundry, $24.50; No. 2, $23.50; No. 2 plain, $22.25. Southern brands, New York delivery; No. 1 foundry, $23.75; No. 2 foundry, $22.75; No. 1 soft, $22.50; No. 2 soft, $22; No. 3 foundry, $21.50.

Warrant irons show a decline. Alabama No. 2 foundry fell from $18 to $17; No. 3 from $16 to $15.50; No. 4 from $15¼ to $15; gray forge from $15½ to $15.

Bar Iron and Steel.—The market continues firm. We quote refined iron as high as 2.35c. in large lots on dock, and common, 2.15c. Soft steel bars, 2.55c.

Plates.—Mills find it as difficult as ever to supply consumers, though the local demand is for small lots. We quote for large lots at tidewater: Tank, ¼-in. and heavier, 3.10@3.15c.; tank, 3/16-in., 3.20@3.25c.; shell, 3.25@3.30c.; flange, 3.40@3.45c.; marine, 3.45@3.50c.; firebox, 3.50@3.55c.; universals, 2.95c. Tank ¼-in. plates for immediate delivery are quoted up to 4c.

Steel Rails and Rail Fastenings.—It is stated that the recent very heavy transactions in rails aggregating over 1,000,000 tons were divided among the various mills in proportion to their productive capacity. We quote for standard sections $35@$36 f. o. b. Eastern mills. Smaller rails are quoted: 12-lb., $40; 16-lb., $40; 20-lb., $40; 30-lb. to 40-lb., $38; 40-lb. to standard, $37, with the usual advance for small orders.

Structural Material.—Good sized orders for structural material continue to be placed. Prices are going up. We quote for large lots at tidewater: Beams, 15-in., 2.50c.; tees, 2.55c.; channels, 2.55c.; angles, 2.45c., with much higher figures for prompt delivery.

METAL MARKET.

NEW YORK, Oct. 27, 1899.

Gold and Silver.

Gold and Silver Exports and Imports
At all United States ports in September and year.

	September.		Year.	
	1898.	1899.	1898.	1899.
GOLD.				
Exports	$3,102,810	$1,056,749	$12,781,923	$33,315,592
Imports	16,808,341	2,572,028	127,343,816	34,246,555
Excess	I. $13,705,531	I. $1,515,279	I.$114,561,893	E. $930,963
SILVER.				
Exports	5,152,103	3,622,147	39,433,500	38,738,937
Imports	2,000,696	2,040,914	21,099,224	22,388,163
Excess	E. $3,151,407	E. $1,581,233	E.$18,334,236	E.$16,350,374

This statement includes the exports and imports at all United States ports, the figures being furnished by the Treasury Department.

Gold and Silver Exports and Imports, New York
For the week ending October 26th, 1899, and for years from January 1st, 1899, 1898, 1897, 1896.

Period.	Gold.		Silver.		Total Excess, Ex. or Imp.
	Exports.	Imports.	Exports.	Imports.	
We'k	$35,497	$120,116	$569,338	$73,853	E. $410,866
1899..	11,646,120	13,129,051	23,683,040	3,038,220	19,161,889
1898..	7,274,687	91,301,209	28,019,569	2,493,117	I. 61,500,070
1897..	48,137,851	13,295,636	33,108,527	1,967,055	E. 34,942,157
1896..	40,471,943	71,361,955	31,214,481	3,318,080	I. 2,993,600

Exports of gold were to the West Indias; imports were in small lots, from various ports. Exports of silver went chiefly to London; imports were from Mexico and Central America.

The United States Assay Office in New York reports the total receipts of silver at 227,000 oz. for the week.

Prices of Foreign Coins.

	Bid.	Asked
Mexican dollars	$ .47½	$ 49
Peruvian soles and Chilean pesos	.42½	.44½
Victoria sovereigns	4.85	4.88
Twenty francs	3.84	3.88
Twenty marks	4.74	4.79
Spanish 25 pesetas	4.78	4.82

Average Prices of Silver per oz. Troy.

Month.	1899.		1898.		1897.	
	Lond'n Pence.	N. Y. Cents.	Lond'n Pence.	N. Y. Cents.	Lond'n Pence.	N. Y. Cents.
January	27.42	59.36	26.29	56.77	29.74	64.79
February	27.44	59.42	25.89	56.00	29.68	64.67
March	27.48	59.64	25.47	54.90	28.96	63.06
April	27.65	60.10	25.95	56.02	28.36	61.85
May	28.15	61.23	26.31	56.98	27.86	60.42
June	27 77	60.43	27.09	58.61	27.58	60.10
July	27.71	60 26	27.32	59.06	27.36	59.61
August	27.62	60.00	27.48	59.54	24.93	54.19
September	27.15	58.89	28.05	60.68	25.66	55.74
October			27.90	60.42	26.77	57.57
November			27.93	60.60	26.87	57.93
December			27.45	59.42	26.83	58.01
Year			26.76	58.26	27.55	59.79

The New York prices are per fine ounce; the London quotation is per standard ounce, .925 fine.

Average Prices of Metals per lb., New York.

Month.	COPPER.		TIN.		LEAD.		SPELTER.	
	1899.	1898.	1899.	1898.	1899.	1898.	1899.	1898.
Jan	14.75	10.99	22.48	13.37	4.18	3.65	5.34	3.96
Feb	18.00	11.28	24 20	14 08	4.49	3.71	6.28	4.04
March	17.54	11.98	23.82	14 38	4.37	3.72	6.31	4.25
April	18.43	12.14	24.98	14.60	4.31	3.63	6.67	4.26
May	18.25	12 00	25.76	14.52	4.44	3.64	6.88	4.27
June	17.93	11.89	25.85	15.22	4.43	3.82	5 98	4.77
July	18 33	11.63	29.63	15.60	4.52	3.95	5.82	4.66
August	18.50	11 89	31.53	16.23	4.57	4.00	5.65	4.58
Sept	18.46	12.31	32.74	16.03	4.58	3.99	5.50	4.67
October		12.41		17.42		3.78		4.98
Nov		12.86		18.20		3.70		5.29
Dec		12.93		18.30		3.76		5.10
Year		12.03		15 70		3.78		4.57

The price given in the table is for Lake Copper. The average price of electrolytic copper in January was 14.26c.; in February it was 17.02c.; in March, 16.35c.; in April, 17.13c.; in May, 17. 2c.; in June, 16.89c.; in July 17.099; in August, 17.42c; in September, 17.34c.

Financial Notes of the Week.

The speculative markets continue rather dull, and there is a disposition among a certain class of stock operators and promoters to call on the United States Treasury for aid in the old way. Business generally is in very good condition, and the demand does not meet with much support. That it is entirely in the interest of certain cliques is shown by the fact that very few are taking advantage of the Treasury's offer to pay interest on bonds in advance.

The silver market has been comparatively steady, with no especial features. Futures for December and January have been placed at cur-

Imports and Exports of Metals.

Port.	Week, Oct. 25.		Year 1899.	
	Expts.	Impts.	Expts.	Impts.
*New York.				
Aluminum .....long tons	.....	.....	333	12
Antimony ore... " "	.....	.....	.....	1,400
" regulus.. " "	.....	120	.....	880
Chrome ore..... " "	.....	.....	.....	2,043
Copper, fine ..... " "	1,825	190	46,388	22,089
" matte.. " "	.....	50	553	928
" ore. .... " "	.....	2,951	.....	42,341
" ash..... " "	.....	.....	.....	187
" sulphate " "	34	.....	11,550	.....
" other ... " "	.....	.....	.....	135
Cop-nickel matte " "	.....	.....	.....	53
Ferro-manganese " "	.....	.....	.....	278
Iron ore .... " "	.....	.....	.....	50
" pig, bar, rod " "	.....	.....	5,587	3,320
" pipe..... " "	285	.....	23,388	.....
" plates, sheets " "	.....	.....	748	146
" other..... " "	.....	.....	1,179	.....
Lead ..... " "	1,350	700	45,905	44,918
" ore..... " "	.....	.....	.....	941
Manganese, ore. " "	.....	115	.....	5,880
Metals, old scrap " "	36	‡146	4,227	3,850
Composition... " "	150	.....	6,249	140
Nails. ..... " "	150	.....	16,001	.....
Nickel ..... " "	70	.....	1,612	105
" Ore ..... " "	.....	.....	.....	4,020
§Railr'd material " "	.....	160	7,122	3,552
Rails, old..... . " "	.....	.....	15,417	.....
Spiegeleisen..... " "	.....	‡139	.....	650
Steel bars, plates " "	.....	164	37,985	13,538
" rails..... " "	.....	.....	44,032	155
" hoops... ... " "	.....	.....	931	.....
" wire..... " "	465	1227	32,661	4,225
" not specf'd " "	112	160	25,054	11,394
Tin ..... " "	.....	820	.....	23,323
" dross or ashes " "	.....	.....	63	.....
" and black plates " "	.....	‡1,741	.....	29,195
Zinc..... " "	.....	.....	272	358
" dross..... " "	.....	.....	437	.....
" ashes, skim " "	16	19	2,068	235
" ore..... " "	.....	.....	6,972	.....
" oxide..... " "	20	.....	3,563	388
†Baltimore.				
Alumina ..... bags	.....	.....	.....	3,479
Antimony regulus...casks	.....	.....	.....	236
Chrome Ore.....long tons	.....	.....	.....	2,300
Copper, fine..... " "	107	199	28,911	1,875
" matte... " "	.....	.....	.....	.....
" sulphate " "	.....	.....	1,562	.....
" pipe..... " "	.....	.....	100	.....
Ferro-manganese " "	.....	50	.....	2,163
Ferro-silicon..... " "	.....	.....	184	95
Iron pig, bar, etc. " "	.....	139	1,209	6,164
" ore..... " "	.....	6,520	.....	209,993
" pyrites..... " "	.....	600	.....	41,607
Manganese ore.. " "	.....	4,500	.....	57,681
Metals, scrap.... " "	.....	.....	4,604	24
Nails ..... " "	17	.....	691	.....
Pipe, iron & steel " "	128	.....	11,312	.....
Spiegeleisen.. " "	.....	.....	.....	1,028
Steel, bars, pl'es.. " "	382	.....	33,954	.....
" wire ..... " "	.....	.....	1,011	23
" rails..... " "	2,660	.....	64,327	276
not specified.. " "	.....	.....	2,761	23
Tin..... " "	.....	.....	563	.....
" dross..... " "	.....	.....	.....	.....
" and blackplates " "	.....	26	.....	2,427
" other..... " "	.....	.....	43	.....
Zinc..... " "	.....	.....	25	5
" dross..... " "	.....	.....	231	.....
" skimmings.. " "	.....	.....	131	.....
*Philadelphia.				
Antimony.....long tons	.....	.....	.....	10
Chrome ore..... " "	.....	.....	.....	3,060
Copper ore..... " "	.....	‡3,567	.....	36,507
" old..... " "	.....	.....	.....	11
Ferro-manganese " "	.....	.....	.....	1,442
Ferro-silicon ... " "	.....	.....	.....	160
Iron, pig..... " "	.....	‡675	.....	3,570
" ore..... " "	.....	‡7,945	.....	214,868
" pyrites..... " "	.....	‡2,650	.....	10,153
Manganese ore.. " "	.....	.....	.....	66,618
Steel sheets..... " "	.....	.....	.....	510
Spiegeleisen..... " "	.....	.....	.....	2 070
Tin..... " "	.....	10	.....	1,050
" and black plates " "	.....	‡135	.....	4,356
Zinc dust ..... " "	.....	.....	.....	.....
" ore ... " "	.....	.....	3,093	.....

Total United States.§§

Articles.	Aug.		Jan.—Aug.	
	Expts.	Impts.	Expts.	Impts.
Antimony.. .....long tons	.....	257	.....	1,008
" ore.... " "	.....	500	.....	1,442
Copper fine ..... " "	10,544	619	66,044	16,779
" sulphate.. " "	156	.....	11,442	.....
" ore & matte " "	.....	2,122	3,794	6,243
Iron, pig & bar.. " "	15,802	4,510	186,159	31,551
" ore..... " "	2,264	73,555	15,673	371,291
Iron& steel plates " "	3,678	837	44,515	2,243
" " wire " "	11,269	273	74,958	1,803
Steel, billets, rods, etc..... " "	2,589	1,492	62,043	17,847
Steel rails..... " "	29,567	.....	159,735	1,123
Lead, pigs, bars & old..... " "	5	65	46	206
Lead in ore..... " "	5,823	5,955	48,106	57,068
Nails, cut..... " "	813	.....	6,251	.....
" wire..... " "	2,913	.....	20,073	.....
Tin..... " "	33	3,284	286	22,693
" plates..... " "	23	6,461	216	38,061
Zinc ..... " "	19	205	5,756	798
" ore ..... " "	1,961	.....	16,794	.....

*New York Metal Exchange returns. †By our Special Correspondent. §Not specified. ‡Week ending Oct. 20th. §§ Monthly returns of the Treasury Department.

The duties on metals under the present tariff law are as follows: Antimony, metal or regulus, ¾c. a lb. Lead, 1½c. a lb. on lead in ores; 2½c. per lb. on pigs, bars etc.; 2½c. on sheet, pipe and manufactured forms. Nickel, 6c. per lb. Quicksilver, 7c. per lb. Spelter or zinc, 1½c. per lb. in pigs and bars; 2c. on sheets, etc. Copper, tin and platinum are free of duty.

rent rates, and there does not seem to be any effort to advance and depress the price.

The statement of the United States Treasury on Friday, October 26th, shows balances in excess of outstanding certificates as below, comparison being made with the statement for the corresponding date of last week:

	Oct. 19.	Oct. 26.	Changes.
Gold	$254,861,055	$253,513,001	D. $1,348,054
Silver	8,016,061	8,508,989	I. 492,928
Legal tenders	15,693,903	15,839,937	I. 146,034
Treas. notes, etc.	1,033,457	847,204	D. 186,253
Totals	$279,604,476	$278,709,131	D. $895,345

Treasury deposits with national banks amounted to $82,511,210, a decrease of $1,385,072 during the week.

The statement of the New York banks—including the 63 banks represented in the Clearing House—for the week ending October 21st, gives the following totals, comparison being made with the corresponding weeks in 1898 and 1897:

	1897.	1898.	1899.
Loans and discounts	$562,175,400	$657,011,300	$700,543,900
Deposits	617,465,200	745,793,100	768,375,700
Circulation	15,970,900	15,515,600	15,727,400
Reserve:			
Specie	100,756,300	156,050,800	143,674,300
Legal tenders	76,514,700	53,809,800	49,860,700
Total reserve	$177,271,000	$209,860,600	$193,535,000
Legal requirements	154,366,300	186,448,275	192,093,925
Balance, surplus	$22,904,700	$23,412,325	$1,441,085

Changes for the week, this year, were increases of $140,500 in circulation, $281,500 in legal tenders, and $263,725 in surplus reserve; decreases were $5,356,000 in loans and discounts, $6,570,500 in deposits, and $1,663,400 in specie.

The following table shows the specie holdings of the leading banks of the world at the latest dates covered by their reports. The amounts are reduced to dollars, and comparison is made with the holdings at the corresponding dates last year.

	1898.		1899.	
Banks.	Gold.	Silver.	Gold.	Silver.
N.Y. Ass'd.	$156,050,800	.....	$143,674,300	.....
England	155,718,720	.....	164,524,100	.....
France	368,388,820	$245,601,720	379,001,080	$234,838,425
Germany	123,900,000	63,825,000	115,170,000	59,845,000
Spain	54,995,000	26,385,000	67,635,000	68,275,000
Aus.-Hun.	176,645,000	62,490,000	184,380,000	62,955,000
Neth'l'ds	21,565,000	33,330,000	13,780,000	29,215,000
Belgium	13,925,000	6,960,000	14,395,000	7,200,000
Italy	73,990,000	11,170,000	77,640,000	7,180,000
Russia	506,545,000	17,880,000	445,065,000	23,385,000

The returns of the Associated Banks of New York are of date of October 21st, and the others are of date of October 19th, as reported by the "Commercial and Financial Chronicle" cable The New York banks do not report silver separately, but the specie carried is chiefly gold coin. The Bank of England reports gold only.

Shipments of silver from London to the East for the year up to October 12th, 1899, are reported by Messrs. Pixley & Abell's circular as follows:

	1898.	1899.	Changes.
India	£3,691,190	£4,177,025	I. £485 835
China	486,107	1,058,163	I. 572.056
The Straits	354,341	226,508	D. 127.833
Totals	£4,531,638	£5,461,696	I. £930,058

Arrivals for the week this year were £224,000 from New York, £35,000 from the West Indies, and £9,000 from Chili; total, £268,000, all bar silver. Shipments were £115,000 to Bombay, £23,000 to Hong Kong, and £18,000 to Shanghai; total, £156,000, all bar silver.

The foreign merchandise trade of Great Britain for the 9 months ending September 30th is given by the Board of Trade returns as below:

	1898.	1899.
Imports	£344,594,917	$356,019,340
Exports	218,183,558	243,014,492
Excess, imports	£126,411,359	$113,004,898

There was an increase of £11,424,473, or 3.3%, in imports; an increase of £24,830,934, or 11.4%, in exports; and a resulting decrease of £13,406,461, or 10.6%, in the excess of imports over exports.

The movement of gold and silver in Great Britain for the 9 months ending September 30th is given by the Board of Trade returns as below:

	Imports.	Exports.	Excess.
Gold:			
1899	26,260,409	15,251,960	Imp. 11,008,449
1898	35,058,096	28,229,671	Imp. 6,838,425
Silver:			
1899	9,796,703	10,802,857	Exp. 1,006,154
1898	10,381,070	10,965,503	Exp. 584,433

The United States furnished £6,575,983, or 67.1% of the silver imported this year.

Indian exchange continues firm and the Council bills offered in London were taken at 16.13d. per rupee. Large sales of silver are reported in India from the treasury of a native rajah; the amount is said to have been somewhere between 750,000 and 1,000,000 rupees.

Other Metals.

Daily Prices of Metals in New York.

October.	Sterling Exchange.	Silver. Fine oz. Cts.	Silver. London, P'nce	Copper. Lake, cts. ₩ lb.	Copper. Electrolytic, ₩ lb.	Copper. Lond'n standard £ ₩ ton.	Tin, cts. ₩ lb.	Lead, cts. ₩ lb.	Spelter, cts. ₩ lb.
21	4.87	58	26½	17¼	16⅞	.....	32	4.57½	5.25
23	4.87¼	57⅞	26⅝	17⅜	16⅞	74 5 0	31¾	4.57½	5.15
24	4.87	57⅝	26⅝	17⅛	16½	73 0 0	30⅞	4.57½	5.10
25	4.86¾	57⅜	26⅝	17⅛	16¾	74 7 6	31¼	4.57½	5.00
26	4.86¾	57⅜	26⅝	17⅛	16¾	74 3 9	31⅛	4.57½	5.00
27	4.86¾	57⅜	26⅝	17	16¾	73 10 0	31⅛	4.57½	5.00

The quotations given for electrolytic copper are for cakes, ingots and wirebars; the price of electrolytic cathodes is usually 0.25c. lower than these figures.

Copper.—The market is very dull, there being no buyers at the moment. The event of the week has been a considerable decline in the price for Lake, which is now 17@17¼c. Other kinds have suffered only slightly, which is not surprising, since the price for Lake has been out of all proportion with that for electrolytic. The latter is now quoted at 16¾@16⅞c. for wirebars and ingots and 16½@16¾c. for cathodes. A proper relative value of the different grades is now once more established, which appears more rational and is likely to bring about more natural conditions and give the market a steadier and more reassuring tone than it has had for some time past. Consumption in all branches continues excellent and manufacturers are receiving orders of good volume, so it can reasonably be expected that large buying will set in again as soon as the mills have worked down their present moderate stocks.

Abroad some business has been done in fine sorts, consumers being generally poorly supplied, and inclined to take advantage of whatever concessions are offered. The speculative market has fluctuated considerably under the influence of political news and the financial conditions. It closed last week at £74 17s. 6d. and opened this week 5s. lower, declining on Tuesday to £73. It reacted on Wednesday to £74 7s. 6d. and closes at £73 10s. for spot and £73 12s. 6d. for three months prompt.

Refined and manufactured sorts we quote: English tough, £78 7s. 6d.@£78 17s. 6d.; best selected, £79 10s.@£80; strong sheets, £87@£87 10s.; India sheets, £84@£84 10s.; yellow metal, 6⅞d.

Imports of copper into Great Britain for the nine months ending September 30th included 82,668 long tons ore (65,832 tons, 1898), 62,754 tons matte and precipitate (59,094 tons, 1898), and 45,096 tons fine copper (51,141 tons, 1898). The imports this year were equivalent to 84,740 long tons fine copper, against 87,271 tons in 1898. The United States furnished this year 397 tons ore, 4,371 tons matte and 17,132 tons fine copper.

Tin.—The market continues to fluctuate, but nevertheless a fair business has been done here. The London market, which closed last week at £144 17s. 6d., declined on Tuesday to £139 7s. 6d., but reacted on Thursday to £143 5s., and closes at £142 for spot and £141 15s. for three months.

Prices on this side have varied in harmony with the movement in London and were down as low as 30¾c, but have since improved to 31½@31⅝c.

Exports of tin from the Straits for the eight months ending August 31st were, in long tons of 2,240 lbs.:

	1897.	1898.	1899.
United States	12,443	15,680	16,770
Europe	15,193	14,324	13,150
China and India	2,242	1,733	845
Totals	29,878	31,737	30,765

The exports this year were 972 tons, or 3.2%, less than in 1898, but 887 tons, or 3.0%, greater than in 1897.

Lead.—Consumption continues excellent and a good business is being done from day to day. Prices are unchanged and we quote 4.55@4.60c. New York; 4.45@4.50c. St. Louis.

Abroad spot metal continues extremely scarce and a good business is being done for all deliveries. Spanish lead is now quoted at £16 12s. 6d., English lead 5s. higher. For forward delivery sales are reported at 5s. less.

Imports of lead into Great Britain for the nine months ending September 30th were: Spain, 71,041 long tons; Australasia, 44,320 tons; United States, 24,269 tons; other countries, 8,243 tons; total, 147,873 tons, against 136,147 tons last year. The imports from Australasia show an increase this year of 15,800 tons.

St. Louis Lead Market.—The John Wahl Commission Company telegraphs us as follows: Lead is dull at 4.47½c. with only retail transactions.

Spelter.—The market has experienced a further decline this week, but the lower figures established are attracting considerable attention and we learn that consumers who have been holding aloof for a long time have about depleted their stocks and are buying more freely at the lower figures. We have to quote 4⅞@5c. East St. Louis, 5@5⅛c. New York.

In London good ordinary spelter is quoted at £21 12s. 6d. and specials at £21 15s.

Imports of metallic zinc or spelter into Great Britain for the nine months ending September 30th were 53,209 long tons, against 58,017 tons in 1898; a decrease of 4,808 tons, or 8.3%, this year.

Antimony is without change. We quote Cookson's at 10½@11c.; Hallett's at 9¾@9⅞c.; U. S. Star and Hungarian at 9½@9⅝c.

Nickel continues on unchanged lines, and no alteration in prices can be reported. We quote for ton lots, 33@36c. per lb, and for smaller orders, 35½@38c. London prices are 14@16d. per lb., according to size of order.

Platinum.—Demand is good, and prices are firmer. In large lots we quote $17.75, and for smaller quantities, $18 per oz., in New York.

For chemical ware (crucibles and dishes), best hammered metal, we quote as follows: In lots of 250 grams or more, 67½c. per gram, and for smaller quantities, 70c. per gram; unmanufactured platinum will be supplied in same quantities at 2c. less per gram.

Quicksilver.—The New York quotation is unchanged at $48 per flask. The London price is also unchanged at £8 17s. 6d., with the same figure named from second hands.

Imports of quicksilver in Great Britain for the nine months ending September 30th were 3,812,184 lbs. (3,920,751 lbs. in 1898). Exports were 1,698,271 lbs. (1,616,511 lbs. in 1898); leaving a balance of 2,113,913 lbs. consumed or added to stocks, against 2,304,270 lbs. last year.

The Minor Metals.—Quotations are given below for New York delivery:

	Per lb.		Per lb.
Aluminum.			
No. 1, 99% ingots	35@37c.	Bismuth	$1.45@$1.50
No. 2, 90% ingots	31@34c.	Magnesium	$2.75@$3
Rolled sheets	38c. up	Phosphorus	40@50c.
Alum.-bronze	20@23c.	Tungsten	70c.
Nickel-alum	33@39c.	Ferro-tungsten, 60%	60c.

Variations in price depend chiefly on the size of the order.

LATE NEWS.

We are informed, by advices just received from Japan, that the Besshi Mine—the largest producer of copper in the country—was completely drowned out by a sudden flood on September 28th. At the same time the villages adjoining the mine, which were inhabited by the miners and laborers employed there, were submerged and more than 600 persons were drowned. The mine is in the province of Iyo, in Shikoku, and has been operated by Mr. K. Sumitomo, of Osaka. The production last year was about 7,000,000 kin (equal to 4,200 metric tons) of fine copper. The restoration of the mine will take some time, owing to the complete destruction wrought by the flood, and also to the fact that nearly all the skilled miners were lost in the flood.

(From Our Special Correspondent.)

The September output of the Cripple Creek District in Colorado is undoubtedly the largest of any month in the history of the camp. It amounted to 36,497 tons of ore of the total value of $1,476,607. Of this 12,926 tons of the value of about $65 per ton, making $840,190, were sent to the smelters and 23,571 tons of the value of $27 per ton, making $636,417, were treated by the chemical mills. The tonnage treated by the smelters was especially noticeable for its great increase. The average value of the smelting ore was somewhat less than usual as, owing to the crowded condition of the mills, some of the higher grade mill ore was handled by the smelters. In spite of this fact, however, the total value of the output for the month as well as the tonnage greatly exceeded that of any previous one. The value of the mill ore maintained a very good average. No work was done during the month by the Brodie or the Gillette Mill. September was also a banner month in the payment of dividends, as well as for production. Among those paid were: Independence, $488,000; Portland, $60,000; Elkton, $30,000; Gold Coin, $10,000; Jack Pot, $50,000; Isabella, $45,000; Raven, $10,000, making a total of $693,000, as well as several smaller ones. The Gold Coin dividend is a monthly one and the Jack Pot and Raven occasional ones. The rest are all quarterly ones.

By Telegraph.

(From Our Special Correspondent.)

Salt Lake City, Utah, October 26th.—In the Grand Central-Mammoth suit in the District Court at Nephi, Utah, Judge Higgins has denied the motion to remove the case to the Federal Court. The defendant's attorney will remove the record to the Federal Court, and pray that it take jurisdiction in this case. Meanwhile the restraining order remains in force, and by stipulation it is agreed that the plaintiff may have access to the underground workings of the Grand Central M'nes for the purpose of surveying and platting the same.

MINING STOCKS.

Complete quotations will be found on pages 536, 537 and 538 of mining stocks listed and dealt in at:

Baltimore,	Philadelphia,	Mexico.
Boston.	Spokane.	Paris.
Colo. Springs.	Salt Lake.	Rossland.
Denver.	San Francisco.	Toronto.
New York.	London.	Valparaiso.

New York. Oct. 27.

The copper stocks were weak in consequence of the lower metal market. Amalgamated, after selling at $89¼ on Monday, fell to $84¾ bid on Wednesday, the lowest price on record, owing to the report that the National City Bank had declined to allow over 60% of the market value of the stock, as collateral. An official denial by the bank has since been made, however. Anaconda for a time moved in sympathy with Amalgamated, and on Tuesday touched $41, but soon recovered to $43¾@$45 on good sales. Tennessee was featureless at $16@$17, British Columbia at $10¼@$11, Whipsaw at $12⅝@$13½, Union of North Carolina at $29 asked, and Markeen at $8@$9½. Arizona Lead was held at $10@$10½.

American Smelting and Refining common sold at $35½@$36½, and the preferred at $86½@$87⅛ on fair sales. Flemington Coal and Coke of West Virginia was held at $28@$30, and Virginia Coal, Iron and Coke at $30@$30⅛. Sloss-Sheffield common was quoted $39½@$41; preferred, $77@$79, and "subscriptions," $135@$140.

Kingston & Pembroke of Ontario is again in demand, and sales were made at 50@60c. Deadwood-Terra, of South Dakota, brought 85c., Elkton of Cripple Creek, $1.10, and Isabella $1.05. Ontario of Utah sold at $8.75, and Brunswick of California at 30c. Phoenix of Arizona changed hands at 14@16c. on a report that a syndicate of New York people will put up the money to work the property. Last July efforts were made to induce the public to subscribe for stock sufficient to operate the mine, but, says president of the company, little stock was taken. The Comstocks were dealt in sparingly, owing to a new crop of assessments.

Auction sales were 22½ shares Edison Ore Milling Company at $10 per share; 37 shares Pennsylvania Coal Company at $492½; and 1,000 shares Helena & Livingston Smelting and Reduction Company, common (par $5) at 17c. per share.

The Cambria Steel Company of Pennsylvania has called the second instalment of $1.50 per share, payable December 1st. Miscellaneous dividends declared include the American Steel Casting Company, of Chester, Pa., semi-annual of 3% on the common stock, payable October 31st; New Haven Iron and Steel Company, first quarterly of $30c. per share, November 1st; International Steam Pump Company. quarter of 1½% on the preferred stock, November 1st; Henry R. Worthington, semi-annual of 3½% on the preferred stock, November 1st.

Boston. Oct. 25

(From Our Special Correspondent.)

The copper stocks have been weak, and prices tended generally downward. Of course there have been occasional rallies, but each one brought out sellers, and the result was further weakness. It has been chiefly an inside market, and the public has been very little in evidence except when there seemed to be a chance to unload.

Calumet & Hecla sold to-day at $740; Tamarack, $212; Quincy, $155; Osceola, $86; Wolverine, $39. In the minor coppers little was done, in spite of efforts to work off stocks at every turn in the market. Parrot sold at $42; Utah, $35½; Baltic, $32; Mohawk, $18. The blind pool group was weak, as a rule, Boston & Montana bringing, $335; Buttte & Boston, $66; Arcadian, $36½; while Amalgamated itself sold for $85. The big dividend of $16 a share on Boston & Montana stock failed to attract much attention.

The gold stocks shared in the general weakness, and the market for them was very narrow, with downward fluctuations.

The Boston Stock Exchange has admitted to the unlisted department the capital stock of the Dominion Iron & Steel Company, Limited. This company was incorporated June 17th, 1899, under the laws of Nova Scotia. There are 150,000 shares, par $100. There is also an authorized issue of $8,000,000 first mortgage 5% bonds, of which $6,000,000 are issued. Officers of the company are: Henry M. Whitney, president; J. S. McLennan, treasurer; William B. Ross, secretary. Directors are: Henry M. Whitney, J. S. McLennan, H. F. Dimock, Almeric H. Paget, George A. Cox, Elias Rogers, Sir William C. Van Robert Mackay, David Mackeen, William B. Horne, R. B. Angus, B. F. Pearson, James Ross, Ross. The principal office of the company is at 95 Milk Street, Boston. Transfer agents: American Loan & Trust Company, of Boston, and National Trust Company of Ontario, Montreal. Places of registration: Federal Trust Company, Boston, and National Trust Company of Ontario, Montreal.

The Megunticook Gold and Copper Mining Company was incorporated here October 3d, by Edward J. Parmenter and Kendric P. Crawford of Boston and Fred J. Hutchinson of Hyde Park, Mass. The company is capitalized at $300,000 and will operate at Lake City, Colo. The main office is in Boston.

Colorado Springs. Oct. 21.

(From Our Special Correspondent.)

Stock speculation is active. The Colorado Springs Mining Stock Association reports for September total sales of 26,900,108 shares, valued at $3,637,119, as against 11,470,568 shares, valued at $1,298,930 in the same month last year. For the 9 months ending September 30th, 1899, the total sales were 166,279,036 shares, valued at $24,587,643, showing an increase of 128,361,957 shares, and of $18,811,703 in values over the corresponding period last year. The rates of brokers' commissions have been reduced one-half since 1898.

Salt Lake City. Oct. 21.

(From Our Special Correspondent.)

The Utah mining share market remains in unsatisfactory form. A large volume of sales is reported, but it is chiefly inside business.

Ajax failed to hold its annual meeting through an oversight, and the present directorate will serve another year. The shares hold fairly firm and more good reports come from the mines. The company this week won the McIntyre $6,500 suit. Bullion-Beck did a lively business at practically last week's figures. Chloride Point appears to have halted on the toboggan. Daisy is a little stronger; under the Murphy management the property did a little better than pay current expenses—a good showing under the adverse circumstances. Dalton & Lark is slumpy and friendless now that the option is passed. Daly retains its strength. Daly-West weakened considerably, selling at $12.50, but closes firm, $12.70 bid.

Four Aces broke into South Swansea workings, and lively rumors of an apex lawsuit filled the air since Tuesday, which had the effect of lowering the shares of each company.

Grand Central and Mammoth are continuing their see-saw game. Mammoth was first up, but a week ago Grand Central took a spurt, advancing to $6.20 and then—as Mammoth steadily climbed—weakened to about $5.50. Mammoth closes very firm, $3.35 bid, $3.42 asked.

A year ago I called attention to the fact that Mercur was not earning its dividend, which was denied by the management. The annual report, issued last January, showed I had been too lenient and share-owners were aghast at the manner in which their property was conducted. President Dern made certain promises, after he had been re-elected, which in the main have not been kept. It is doubtful if the mines today are safely earning the reduced dividend. Mr. Dern and associates no longer own the control, and the share-owners should acquaint themselves with the facts before their property is irretrievably ruined. This averment is made in reply to an inquiry asking, "When will the Mercur dividend be restored to $25,000 per month? and what is the outlook?" In the foregoing I am as moderate as I was in my presentation of the facts a year ago, and the share-owners may be prepared for a less satisfactory financial statement in January, 1900, than the one for the prior year.

San Francisco. Oct. 21

(From Our Special Correspondent.)

The usual record this week of a limited inside market, and no public interest. To be sure there has been nothing in the news or elsewhere to stimulate speculation, and very little was done outside of the usual petty dealings of the chippers. Prices were generally weak, with some rallies at the close.

On Wednesday the Exchange was almost deserted, everybody going over to have a look at the new Oil Exchange. How the public will take to that concern remains to be seen. At present things look quite promising.

The California Oil Exchange was formally opened on Wednesday, October 18th, President Wendell Easton making a short address. Col. William Edwards is chairman. There are 26 oil companies listed to start with. The rules provide for two calls daily, at 10 A. M. and 3 P. M. The sales at the first call on Wednesday were as follows: 400 shares Tidal Wave Oil Company at $2.25, and 200 at $2.35; 50 shares St. Lawrence Oil and Mineral Company at $15; 200 shares Northfield Oil Company at 75c.; 100 shares Equitable Oil Company at $1; 100 shares Big Panoche Oil Company at $1.80; 100 shares Kings County Oil Company at $2; 100 shares Eagle Oil Company at 50c.; 200 shares Stella Oil Company at 50c.

London, England. Oct. 18.

(From Our Special Correspondent.)

We have now arrived at a war stage in the South African mining market. The duration of the war and the possible damage done to the mines are far too uncertain for the average speculator in mining shares. Genuine holders sit tight, and in some cases would be inclined to increase their holdings if the falls were great. Many speculators also have a vague idea that they will buy at the low prices expected. At the present time the falls have not been very great, though now and then some holder, generally French, rushes into the market to sell at all costs. His shares soon get picked up and the market steadies itself again. The rumors passed round in the market and by the press are mostly gross exaggerations of the worst type, and many of them emanate from American sources. First, we have a report of the capture of Cecil Rhodes by the Boers; then "tremendous slaughter of the Boers in Natal"; then the capture of Kimberley by the Boers. As a variation we get reports that the Boers have poisoned all the rivers with cyanide of potassium, or that the forts at Pretoria are absolutely impregnable and can destroy an army 10 miles away. I give these as samples of our daily treats; but in spite of them all the market continues fairly steady. It really is surprising, however, that the falls are not greater, when one contemplates the immense damage that must be done to the mines and plants, and the loss of bullion "commandeered" by the Boers.

Other sections of the market are much neglected, sympathetically with the South African section, though the Kalgoorlie mines continue to afford a fair amount of business. The first new mining issue that we have had for many weeks made its appearance on the West Australian market the other day, but this was one of the "Prospectus-published-for-general-information" class, to which I have often pointed attention. It is called the Associated Northern Blocks, Limited, and it has been formed to purchase from the Associated Gold Mines of West Australia, Limited, 4 claims called the Iron Duke, Iron Monarch, Medindie Hill and Medindie Hill East, which lie to the north of the well-known Australia properties belonging to that company. Though the properties have been owned for several years, little appears to have been done on them. No independent report is given as to their value, though the name of John Taylor & Son is dragged into the prospectus in a way that that firm can hardly relish. The capital of the company is £350,000, of which £250,000 in shares is the purchase price. The remaining 100,000 shares of £1 each are offered for subscription only to the shareholders in the vendor company, but as this vendor company guarantees the issue the whole process looks like nothing else than squeezing a little more money out of the shareholders. Another remarkable feature of the promotion is that the board of directors is identical with the board of directors of the vendor company, an arrangement which is clearly contrary to the law of limited companies. In the prospectus, however, it is stipulated that applicants for shares shall wink at this breach of the law—just as if you can break the law by agreeing to do so! The only effect of such winking would be to make the applicants for shares parties to a conspiracy.

In June last I recorded the flotation of the Panuco Copper Company by the house of Matheson & Company, to float a copper mine of that name in Coahuila, Mexico. It was reported on by Mr. C. H. Palmer, late of the Butte & Boston Company, and by Mr. Thomas Down, of the Tharsis Company. It appears, however, that since the sale was effected, Mr. Schneider, who was deputed to report on the best way of mining, shipping and treating the ores, has expressed an opinion as to the contents and ore in sight that is not so flattering as the opinions of the two other experts. It has therefore been deemed best to have the properties examined independently by Mr. Knox, of New York. Mr. Knox has before now rightly turned down copper properties that were much lauded by their vendors, so that his selection in this case is quite a judicious one.

Paris. Oct. 15.

(From Our Special Correspondent.)

The point which draws greatest attention this week in the mining stock market is the Transvaal gold stocks. War has been actually begun and it is not easy to foresee the results to the mining industry, in which French people are so largely interested. It is evident that the English are going to have no easy task. A long war will produce irritation, and one cannot be sure that the Boers, if defeated, will not take vengeance upon the mines which have caused all their troubles. A few people here have been frightened, and are ready to sell out at any price; but the great majority are disposed to hold their stocks and wait the course of events.

I am informed that the production of the Boleo Company shows an increase for the first half of the year of 460 tons of fine copper, a gain of 8.2%. It is thought that the output for the year will exceed 11,000 tons.

There is talk in some quarters of European interference in the South African dispute, or of some demonstration against Great Britain in other quarters. I do not think it probable. No one loves the aggressive Briton; but war is a serious matter now, and the tendency is to localize a contest so far as possible.

War is too costly to trifle with—even for a rich nation. Azote.

STOCK QUOTATIONS.

NEW YORK.

Name of Company	Location.	Par val.	Oct. 20. H.	Oct. 20. L.	Oct. 21. H.	Oct. 21. L.	Oct. 23. H.	Oct. 23. L.	Oct. 24. H.	Oct. 24. L.	Oct. 25. H.	Oct. 25. L.	Oct. 26. H.	Oct. 26. L.	Sales
Adams	Colo	$10	.10	.....	.10	.....	.15	.....	.12	.....	.11	.....	.....	.....	300
Alamo	"	1	.09	.....	.10	.....	.10	.....	.09	.....	.09	.....	.10½	.10	1,800
Alice	Mont.	5	.50	.....	.50	.....	.50	.....	.55	.....	.65	.....	.....	.....	1,000
Amalgamated C	Mont.	† 100	88.50	88.00	89 00	88.00	88.25	88.00	86.00	85.50	84.88	84.75	86.00	85.75	33,300
Anaconda, c	Mont.	25	46.75	46.00	46.00	...	45.50	43.75	43.50	41.00	45.00	43 75	43.50	.....	
Anaconda Gold	Colo.	5	.43	.....	.44	.....	.43	.....	.41	.....	.41	.....	.44½	.41	
AnchoriaLel	"	1	.74	.....	.75	.....	.75	.....	.75	.....	.75	.....	.80	.74½	
Argentum-Jun	Colo	2	.23	.....	.23	.....	.24	.....	.24	.....	.24	.....	.....	.....	100
Belcher	Nev.	3	.20	.....	.15	.....	.15	.....	.5	.....	.25	.....	.....	.....	
Best & Belcher	"	3	.30	.....	.24	.....	.....	.....	.45	.....	.50	.....	.....	.....	800
Breece	Colo.	25	1.50	.....	1.50	.....	1.50	.....	1.50	.....	1.50	.....	.....	.....	
Brit.Col.Copper	B. C.	10	11 50	10.75	11.25	10.50	11.00	10 25	11 00	10.25	11.00	10.25	10 75	10.00	
Brunswick	Cal.	1	.26	.....	.30	.....	.30	.....	.30	.....	.30	.....	.....	.....	500
Catalpa	Colo.	10	.20	.....	.20	.....	.20	.....	.20	.....	.20	.....	.....	.....	
Challar	Nev.	3	.30	.....	.....	.....	.....	.....	.25	.....	.30	.....	.....	.....	
Comst'k T., st's	"	100	.03	.....	.05	.....	.03	.....	.08	.....	.03	.....	.....	.....	500
do. bonds	"	100	.03	.....	.03	.....	.03	.....	.03	.....	.03	.....	.....	.....	
Con. Cal. & Va	"	2½	1 90	.....	1.50	.....	1 72	.....	1.55	.....	1.55	.....	.....	.....	200
Croesus	"		.01	.....	.....	.....	.01	.....	.01	.....	.01	.....	.....	.....	
Cr & Cr. Creek	Colo.	1	.10	.....	.10	.....	.10	.....	.10	.....	.10	.....	.....	.....	2,000
Crescent	"	10	.15	.....	.15	.....	.15	.....	.15	.....	.15	.....	.....	.....	
Cripple Cr. Con.	"	1	.15	.....	.16	.....	.18	.....	.18	.....	.18	.....	.....	.....	2,000
Crown Point	Nev.	3	.15	.....	.15	.....	.....	.....	.10	.....	.12	.....	.....	.....	5.0
Deadw'd Terra	S.Dak		.70	.....	.70	.....	.70	.....	.85	.....	.85	.....	.....	.....	200
Dunkin	"		.08	.....	.08	.....	.10	.....	.10	.....	.....	.....	.....	.....	
Elkton	Colo.	1	1.10	.....	1.15	.....	1.16	.....	1 16	.....	1.10	.....	1.15	1.15	1,600
Eureka	Nev.	20	.25	.....	.25	.....	.25	.....	.30	.....	.25	.....	.....	.....	
Father de Smet	Dak.	100	.10	.....	.10	.....	.10	.....	.10	.....	.10	.....	.....	.....	
Findley	Colo	1	.....	.....	.17	.....	.16	.....	.15	.....	.15	.....	.....	.....	2,000
Garf. Con	"	1	.19	.....	.19½	.....	.19	.....	.19½	.....	.....	.....	.20	.19½	
Gold Coin C.Ck	"	1	2 20	.....	2.10	.....	2.10	.....	2.10	.....	.....	.....	2.20	2.10	700
Golden Fleece	"	1	.27½	.....	.24	.....	.26	.....	.25	.....	.24	.....	.28	.26½	
Gould & Curry	Nev	3	.37	.....	.25	.....	.30	.....	3	.....	.30	.....	.....	.....	1,500
Hale&Norcross	Nev	3	.33	.....	.30	.....	.28	.....	.30	.....	.30	.....	.....	.....	
Homestake	S. Dak	100	65.00	.....	65 00	.....	65.00	.....	65.00	.....	65.00	.....	.....	.....	
Horn Silver	Utah.	25	1.35	.....	1 20	.....	1.30	.....	1.30	.....	1.30	.....	.....	.....	100
Iron Silver	Colo.	20	.50	.....	.51	.....	.52	.....	.54	.....	.54	.....	.....	.....	
Isabella	"	1	.91	.....	1 05	.....	1.05	.....	1.00	.....	1.04	.....	1.05	1 037	600
Jack Pot	"	1	.68	.....	.64	.....	.65	.64	.60	.....	.60	.....	.....	.....	900
Jefferson	"	1	.08	.....	.11½	.....	.10	.....	.08	.....	.14	.....	.12½	.12	
King & Pemb	Ont.	10	.30	.....	.40	.38	.45	.....	.50	.....	.60	.50	.....	.....	900
Lacrosse	Colo.	10	.14	.....	.16	.....	.16	.....	.16	.....	.16	.....	.....	.....	
Leadville Con	"	10	.....	.....	.09	.....	.09	.....	.08	.....	.08	.....	.....	.....	
Little Chief	"	10	.18	.....	.19	.....	.19	.....	.18	.....	.19	.....	.....	.....	
Mexican	Nev.	3	.31	.....	.20	.....	.30	.....	.30	.....	.28	.....	.....	.....	1,500
Mollie Gibson	Colo.	5	.27	.....	.26	.....	.20	.....	.27	.....	.27	.....	.29	.27½	1,800
Morenci Cop. pf	"	1	1.29	.....	1.77	.....	1.747	.....	1.748	.....	1.69	.....	1.72	.....	10
Mouiton	Mont.	25	.40	.....	.33	.....	.30	.....	.35	.....	.30	.....	.....	.....	50
Mt. Rosa	Colo.	1	.37	.....	.40	.....	.35	.....	.34	.....	.35	.....	.....	.....	900
Occidental	Nev.	3	.15	.....	.14	.....	.12	.....	.14	.....	.12	.....	.....	.....	
Ontario	Utah.	100	7.50	.....	7 75	.....	7.50	.....	8 75	.....	8.00	.....	.....	.....	100
Ophir	Nev	3	.80	.....	.75	.....	.80	.....	.72	.....	.72	.....	.....	.....	
Pharmacist	Colo	1	.06	.....	.07	.....	.08	.....	.09	.....	.09	.08	.....	.....	7,600
Phœnix	Aris.	1	.....	.14	.16	.15	.16	.15	.16	.15	.15	.14	.....	.....	11,500
Plymouth Con	Cal.	10	.08	.....	.08	.....	.08	.....	.12	.....	.12	.....	.....	.....	200
Portland	Colo.	1	2.35	.....	2.40	.....	2.40	.....	2.35	.....	2.38	.....	2.40	2.375	
Potosi	Nev.	3	.45	.....	.35	.....	.41	.....	.47	.44	.48	.....	.....	.....	2,600
Quicksilver	Cal.	100	1.50	.....	1.50	.....	1.50	.....	1.50	.....	1 50	.....	.....	.....	
do. pref	"	100	6.50	.....	7.50	.....	7.50	.....	7.00	.....	7 00	.....	.....	.....	100
Savage	Nev.	2½	.20	.....	.18	.....	.15	.....	.18	.....	.18	.....	.....	.....	
Sierra Nevada	"	3	.57	.....	.60	.....	.55	.....	.61	.....	.51	.....	.....	.....	600
Small Hopes	Colo.	20	1 00	.....	1.00	.....	1.10	.....	1.18	.....	1.00	.....	.....	.....	
Specimen	"	1	.09	.....	.09	.....	.10	.....	.09	.....	.09	.....	.....	.....	
Standard Con	Cal	1	2.90	.....	3 00	.....	2.85	.....	2.15	.....	3.00	.....	.....	.....	
Tenn Copper	Tenn	25	18.00	17.00	18 00	17.00	17.00	16.00	16 75	16 00	17.00	16.00	.....	.....	
Union	Colo.	1	.32	.....	.29	.....	.31	.....	.30	.....	.36	.....	.38½	.37½	
Union Con	Nev.	2½	.2	.....	.30	.....	.38	.....	.28	.....	.....	.....	.....	.....	
Utah Con	"	5	.1	.....	.13	.....	.14	.....	1	.....	.13	.11	.....	.....	5,000
Work	Colo.	1	.34	.....	.30	.....	.31	.....	.31	.....	.21	.....	.33½	.33¼	4,200
Yellow Jacket	Nev.	5	.28	.....	.20	.....	.25	.....	.20	.....	.20	.....	.....	.....	1,030

COAL AND INDUSTRIAL STOCKS.

Am. Sm. & Ref.	.....	$100	36½		36	.....	36½	36¼	36¼	35½	36¼	36	36¼	.....	3,469
" " " pf	.....	100	87	86½	87¼	.....	87½	86½	87½	86¾	86¾	86¼	.....	.....	2,910
Am.S &W Co n	.....	100	51	49½	50¾	50¼	51¼	50¾	51½	50¾	50¾	48¾	49¾	.....	39,650
" " pf'r n	.....	100	96	95½	95¼	95¼	95¼	95¼	95	94¾	.....	.....	95	.....	6,610
Central of N. J.	N. J.	100	119¾	119	121	120¾	121½	121	121¾	121¼	26	121	123¾	.....	15,580
Col. C. & I. Dev	Colo.	100	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	2¼	.....	200
Col. Fuel & I	Colo.	100	54¾	54	55¾	54¾	55¾	55	55¾	55	52¾	54¾	55¾	.....	8,405
" " pf	"	100	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	
Col. & H.C.& I.	Ohio.	100	.....	.....	19	.....	19	18¾	18¼	.....	18¼	.....	.....	.....	8,500
Del. & Hud	N. Y.	100	122¾	121¾	.....	.....	122¼	122	122¾	122¼	124½	122¾	123¾	.....	
Federal Steel	.....	100	54¾	53	53¾	53¼	53¾	53¾	54¼	54¼	54¾	53¾	54¾	.....	77,273
" " pf	.....	100	78	77¾	77¾	.....	79	78¼	79	78¼	78¾	78	79	.....	9,363
National Lead	N. Y.	100	29	.....	29¾	29	29¾	29¼	29¾	.....	29	28	.....	.....	2,297
" " pf	Md.	100	.....	.....	110	109¾	.....	.....	109	.....	108¾	108	109	.....	1,040
National Salt	.....	100	46¼	45	46¼	45	46¼	45	47¾	46	47¾	46	47	45	
" " pf	.....	100	77	75	77	75	77	75	77	75	77	75	77	75	
N. Y., Ont. & W.	N. Y.	100	25¼	24¾	25	.....	25⅜	25	25¼	25¼	26¼	25¼	25⅜	.....	23,270
Reading, 1st pf.	Pa.	100	58½	58¼	58¾	58¾	59¼	58¾	59¼	58¾	61¾	59	61¾	.....	59,347
" " 2d pf.	"	100	.....	.....	32¾	31	32½	32	32	.....	33¾	32	33¾	.....	11,000
Republic I. & S.	.....	100	26¼	26	26¼	25¾	26	25¼	25¾	24	24¾	23¾	24¼	.....	7,262
" " pf	.....	100	71	.....	71	.....	71¾	71	70¾	.....	70	69¾	71	.....	4,818
Tenn.C.,I.&R.R.	Ala.	100	118¾	117¾	118	117	118¾	117¾	117¾	117	117¾	116¾	116¾	.....	11 185

† Ex-dividend.

PHILADELPHIA, PA.

Name of Company	Location.	Par Val.	Oct 19. H.	Oct 19. L.	Oct. 20. H.	Oct. 20. L.	Oct. 21. H.	Oct. 21. L.	Oct. 23. H.	Oct. 23. L.	Oct. 24 H.	Oct. 24 L.	Oct. 25. H.	Oct. 25. L.	Sales
Am. Alkali	.....	.....	3.50	.....	3.50	.....	2.00	.....	3.50	.....	3.50	3.38	3.50	3.38	1,385
" " pf	.....	.....	.....	.....	.....	.....	.....	.....	1 88	.....	.....	.....	.....	.....	100
Bethlehem Irn	Pa.	.....	61.00	.....	.....	.....	.....	.....	61.00	.....	.....	.....	.....	.....	210
Bethlehem St'l	"	$50	20.25	20.00	20.00	.....	20.00	.....	20 88	20 00	21 00	20.38	21 00	.....	2,344
Cambria Iron	"	50	44.63	.....	.....	.....	44 75	.....	44.63	.....	44.63	.....	44.50	.....	436
Cambria Steel	I.T.	50	23 75	23.50	23.75	23.50	.....	.....	24.50	23.75	24.38	24 13	23.13	24.00	4,665
Choctaw pref.	Pa.	50	.....	.....	.....	.....	.....	.....	46.25	.....	46.00	.....	.....	.....	41
Lehigh Val	"	50	26.13	25.88	25.88	.....	26.38	26.00	26.63	26.50	26 75	26.50	27 00	26.88	7,772
Penna. R. R.	"	50	65 63	65.50	66 25	65.75	66.00	.....	66.50	66.38	66.75	66.38	66 63	66.38	932
Susq I. & S.	"	.....	5 75	5.63	6.00	5.75	6.50	.....	6.00	5.88	5.88	.....	5.88	.....	2,660
United Gas I.	"	50	161¾	161	162¾	161¾	.....	.....	165	163¾	164½	.....	164¾	164	620
Welsb. of Can	Can.	100	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	200
Welsb. Coml.	"	100	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	
Welsb Light.	"	100	50.25	49.25	50.00	.....	.....	.....	50.13	.....	.....	.....	.....	.....	345

Total shares sold, 21,198.

VALPARAISO, CHILE.*

Sept. 9.

Name of Company.	Location.	Capital paid.	Sh.Val. paid up.	Last Div'nd. Amt.	Last Div'nd. Date.	Prices. Bid.	Prices. Asked.	Prices. Last sale
Arturo Prat, silver	Chile	$3,300,000	$100	4 p. c.	1897	19	20	20
Caracoles, silver	"	315,000	100	10 "	1894	5	20	7
Huantajaya (mine) silver	"	1,000,000	100	13 "	1894	.....	.....	.....
Huanchaca, silver	Bolivia	5,000,000	25	4 "	1895	30	35	30
Oruro, silver	Chile	800,000	200	.....	.....	280	290	280
Todos Santos, silver	"	2,000,000	100	1	1893	4	5	6
Agua Santa nitrate	"	3,000,000	50	5	1898	161	165	161
Antofagasta, nitrate	"	2,000,000	200	3 "	1898	100	100	100
Soc. Internacional, nitrate	"	1,800,000	60	.....	.....	.....	.....	5
Union, nitrate	"	3,000,000	200	.....	.....	65	70	72

* Special report of Jackson Bros. Values are in Chilean pesos or dollars.

BOSTON, MASS.†

Name of Company.	Par val.	No. of shares.	Oct. 19. H.	Oct. 19. L.	Oct 20. H.	Oct 20. L.	Oct. 21. H.	Oct. 21. L.	Oct. 23. H.	Oct. 23. L.	Oct. 24 H.	Oct. 24 L.	Oct. 25. H.	Oct. 25. L.	Sales
Aetna, cons. g.	$25	100,000	4.25	.....	.....	.....	.....	.....	.....	.....	4.63	4.50	.....	.....	300
Adven'u'e,Cons	25	100,000	7.00	6.00	6 50	.....	6.25	.....	6.50	6.00	6.00	5.50	6.00	5 50	1,462
Alloues	25	80,000	4 75	4 13	4 75	.....	.....	.....	5.00	.....	4 75	4.50	4.25	3.75	1,960
Am. Z., L. & S.	25	60,000	51.00	49.50	.....	.....	49 50	.....	.....	.....	.....	.....	.....	.....	495
Anaconda	25	1,200,000	.....	.....	46.63	.....	.....	.....	.....	.....	41.25	.....	45.50	43.88	522
Arcadian, c	25	150,000	4 50	38.50	41 00	40.25	41 00	40.00	41.00	39.00	38 00	37 00	37 50	36.00	5,846
Arnold, c	25	60,000	9 00	.....	9.00	.....	.....	.....	9.00	.....	.....	.....	8.50	8.00	490
Ashbed	25	40,000	.....	.....	1 00	.....	.....	.....	1 13	1.00	.....	.....	.....	.....	80
Atlantic, c	25	40,000	26 75	.....	27.00	.....	.....	.....	28.00	.....	26.50	25 00	26.00	25.25	337
Baltic, c	25	100,000	22 25	22.00	23 00	22.50	24.00	23.50	24.50	24.00	23.00	22 00	22.0	.....	3,725
Bingham, c.&g.	10	190,000	14.75	14.50	14.25	.....	15.00	14 75	15 00	14.00	14.50	14.00	14.50	13.75	1,820
Bonanza, g	10	800,000	1.50	1.25	1.38	1.25	.....	.....	1.00	.....	1.50	1.25	1.25	.....	3,985
Boston	2	200,000	.....	.....	.....	.....	.....	.....	6.00	.....	6.00	.....	6.00	.....	400
Boston & C. C	2	20,000	.....	.....	.....	.45	.....	.....	.....	.....	.....	.....	.5	.....	7.0
Bos.&Mon,Tr. R	25	150,000	343	338½	348½	345	347	344½	345	340	340	332	340	335	712
Breece	25	200,000	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	
British Col.	5	200,000	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	
Butte & Bost., c	10	200,000	69.00	.....	.....	.....	.....	.....	71.00	70 00	70.00	.....	66.00	65.00	380
Cal. & Hecla, c	25	100,000	750	.....	750	.....	750	745	750	.....	747	743	744	740	280
Catalpa, s	10	300,000	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	
Centennial, c	25	90,000	25 00	23.50	24 50	23.50	24 25	23.50	24.63	24 00	24 00	23 00	23 00	.....	4,285
Central Oil	25	59,720	23 63	23 25	23 75	23 50	24.00	23.75	24.00	23.75	23.88	23 38	23 75	23 25	1,856
Cochiti, g	10	150,000	17 88	17.00	18.00	17.50	17.75	17.50	17.50	17.00	16.75	16.50	17.00	15 50	6,001
Copper Range	10	100,000	35.00	.....	36 00	.....	36 63	36.50	35 50	.....	35.50	35.00	36.00	34.50	1,785
Crescent			21	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	500
Dominion Coal	100	150,000	43 88	43.00	43.50	42 50	43.50	43.00	44.00	43.00	43.00	42.50	44.00	42.75	1,515
do. pref	100	20,000	.....	.....	.....	.....	.....	.....	117	.....	.....	.....	.....	.....	7
Federal Steel	100	464,843	54 75	54.00	54 00	53.00	53.88	53 25	55.25	54.13	55.88	55.00	54.00	54.00	12,830
do. pref	100	532,610	78.00	.....	78 25	77.50	.....	.....	78.50	.....	.....	.....	.....	.....	185
Franklin, c	25	100,000	17 00	16 50	17.25	16.25	16.50	16.25	16 50	.....	16 50	16.00	16.00	16.00	1, 92
Gold Coin, g	5	200,000	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	
Humboldt, c	25	40,000	1.75	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	100
I. Royal Con. c	25	100,000	41.00	37.00	40 00	39 00	39 00	.....	38.00	.....	39.00	37.00	37.00	36.00	1,595
Mass., Con	25	100 000	10.0	9.00	10.00	9.00	9.00	.....	.....	.....	9.00	.....	9.00	.....	1,370
Mayflower	25	100,000	4.00	3.75	4.00	.....	.....	.....	.....	.....	.....	.....	3.50	.....	805
Melones		167,577	2.50	2.00	2.25	.....	.....	.....	2.25	.....	.....	.....	.....	.....	900
Merced, g	15	100,000	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	
Michigan	25	100,000	10.00	9.50	9 50	9.00	9.50	.....	9.00	.....	9.00	.....	.....	.....	1,295
Mohawk, c	25	100,000	19.00	.....	19.50	19 00	19 00	.....	19.00	.....	18.50	18.00	18.00	17.50	1,180
Naps	7	100,000	11.00	.....	.....	.....	.....	.....	.....	.....	11 00	.....	.....	.....	200
New Idria	5	100,000	.....	.....	.....	.....	.....	.....	12.75	12.50	12.75	.....	.....	.....	200
N.A.Gold Dre'g	10	100,000	24.00	22.50	.....	.....	.....	.....	.....	.....	22.50	.....	.....	.....	310
Old Colony, c	25	100,000	7.50	7.25	.....	.....	.....	.....	7 25	7.00	.....	.....	7.50	6 50	1,089
Old Dominion, c	25	150,000	30 00	28 00	30 00	29.13	29.00	.....	29.00	27.50	27.75	26.00	27.00	26.00	3,815
Osceola, c	25	95,000	81 50	80.63	84 50	81.50	84.00	83 50	84.00	81.50	82.00	79.75	80 75	80.00	1,538
Parrot, s & c	10	229,850	45.00	44.00	44.75	44.00	45.00	44.13	44.50	43.00	43.00	40 00	42 00	40.50	3,595
Pioneer, g	10	100,000	.....	.....	3.00	.....	.....	.....	.....	.....	.....	.....	.....	.....	250
Quincy, c	25	100,000	155	152	155	.....	154	.....	155	.....	155	154	153	150	218
Rhode Island	25	100,000	6.00	5.00	6 00	.....	.....	.....	6.00	.....	5.75	5 50	5 50	5.00	654
Santa Fe, g. & c	10	250,000	11.00	10.50	11 00	10.50	10 75	10.13	10 5	10 00	10 00	8.25	9.00	7.00	12,100
San. Yeabel, g.	5	130,000	12.63	11.50	11 75	.....	12 00	.....	12.50	.....	.....	.....	11.50	.....	791
Tamarack, c	25	60,000	212	.....	215	.....	215	.....	212	211	210	212	.....	.....	174
Tecumseh, c	25	80,000	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	
Tri Mountain	25	100,000	7 75	7.50	.....	.....	8.50	.....	9.00	8.50	8.50	6.25	8.00	.....	1,410
Union C. L	25	80,000	5.50	4.50	5.00	.....	.....	.....	.....	.....	4.00	.....	4.00	3.63	965
United States	25	250,000	30.38	29.50	31.50	29.50	31.38	30.75	31.13	30.38	30.25	30.00	30.25	29.88	17,98
U. S. Oil	25	100,000	44.00	42.50	44.00	.....	44 00	.....	44.75	44 0	44 50	43.50	44.00	42.75	2,212
Utah Cons,g &c	5	300,000	37 0	35.75	36.88	36.50	36.50	.....	37.25	36.00	35.50	32.00	35 50	35.00	4,54
Victoria	25	100,000	4.50	.....	4 80	.....	.....	.....	.....	.....	5.00	4.0	4 50	4.00	736
Washington	25	40,000	1.88	1.63	1.50	.....	.....	.....	.....	.....	2.00	1 88	2.00	.....	1,075
White Knob	100	50,000	.....	.....	.....	.....	.....	.....	12 00	.....	.....	.....	.....	.....	200
Winona, c	25	100,000	8.00	7.75	7 50	7.00	.....	.....	7.00	.....	.....	.....	7 00	.....	545
Wolverine, c	25	60,000	40.00	39.75	40.00	.....	40.38	40 00	41.00	40.38	41.50	39.00	39.25	39.00	1,608
Wyandotte	25	100,000	2.50	.....	.....	.....	.....	.....	3.00	2.50	3.00	2.50	2.75	2.25	1,415

Official quotations Boston Stock Exchange. Total sales, 118,085. †Ex-dividend.

COLORADO SPRINGS, COLO.‡

Name of Company.	Par val	Oct. 16. B.	Oct. 16. A.	Oct. 17. B.	Oct. 17. A.	Oct. 18. B.	Oct. 18. A.	Oct. 19. B.	Oct. 19. A.	Oct. 23. B.	Oct. 23. A.	Oct. 24. B.	Oct. 24. A.	Sales.
Alamo	$1	.09½	.10	.09¾	.10	.09¾	.10	.10	.10½	10	10½	.10	.10¾	9,900
Anaconda	1	25½	45	.45	.45½	.44¾	.....	.45	.46	.43	.44	.44	.45	11,000
Arg'ntumJ	1	.....	.26	.26	.25¾	.26	.25¾	.26	.....	.25¾	.26	.26	.26¼	1,500
Cadillac	1	.02½	.02¾	.02¾	.02¾	.02¾	.02¾	.02¾	.02¾	.....	.....	.....	.....	2,000
C. C. Con	1	.15¾	.15¾	.16	.16¼	.16	.16¾	16	.16¾	.19¾	.19¾	.18¼	.18¾	27,000
Dante	1	.20¾	.20¾	.21¾	.....	.21¾	.21¾	.21¾	.21¾	.....	.....	.....	.....	17,000
ElktonCon	1	1 17¾	1.19	1 19¾	1.20	1.18¾	1.19¾	1.18¾	.....	1.15	1.15¾	1.15¼	1.17	41,000
El Paso G	1	.41¾	.....	40	.41¾	39	40	40	.40¾	.39¼	.41	.39¼	.41	11,000
Favorite	1	.05¼	.05¾	.....	.06	.....	.6	.05¾	.05¾	.....	.....	.....	.....	8,500
Findley	1	.17¾	.18	.17¾	.18	.16¾	.16¾	.16½	.17	.16	.16½	.16¼	.16½	31,400
Golden Fl	1	.28	.30	.26	.30	.28¾	.30	.....	.30	.26	.30	.26½	.26¼	
Gold Hill	1	.03¾	.03¾	.03¼	.03	.....	.03¾	.03¾	.03¾	.....	.....	.....	.....	18,000
Ing. Con	1	.10¾	.10¾	.10¾	.11	.10¼	.11	.10¾	.10¾	.....	.....	.....	.....	7,000
Isabella	1	.92¾	.93¼	.93¼	.90¾	.92	.....	.96½	.98

STOCK QUOTATIONS.

DENVER, COLO.‡

Name of Company.	Par val.	Oct. 16. B.	Oct. 16. A.	Oct. 17 B.	Oct. 17 A.	Oct. 18. B.	Oct. 18. A.	Oct. 19. B.	Oct. 19. A.	Oct. 20. B.	Oct. 20. A.	Oct. 21. B.	Oct. 21. A.	Sales.
Mines:														
Anac'da G.	$5			44		.44¾	.45	.44¾	.45	.44		.44		
Arg. J.	1	.28		.25										2,000
Bankers	1	.15												
CrippleC.C.	1	.15	.15¾					.16½		.16½	.16¾	.19¾	.20¾	3,000
Della S.	1	.02¾		.02½						.02½		1.15¾		
Elkton Con	1							1.20	1.17			.17¾		
Findley	1													
Garf. Con.	1						.18	.18¾						
Gold Coin.	1													
Goldstone.	1	.02½	.02¾			.02½	.04¾	.02¾	.02¾					1,000
Indepnd'nc	1				.47									
Ironclad	1			.06¾				.06	.07					
Isabella	1		.93	.92½	.94				.98	1.02	1.03	.98	1.00	2,6 0
Jack Pot	1	.67½				.66	.67	.65				.62		500
Jefferson	1							2.30		2.35		2.44		
Keystone	1	.11		.11¾	.12¾			.12		.12		.13		2,000
LosAngeles	1	.09	.09¾		.10		.09¾	.09		.09	.09¾			
Mollie Gib.	5				.29		.30		.28¾					
NewZealnd	1	.46					.50		.50	.52				
Ophir	1	42	.49	.45¾		.48		.49		.50				
Pharmacist	5			.06½	.06¾	.06¾	.06¾				.07			
Portland	1					2.30		2.35			2.44			
Specimen	1			13¾	.13¾		13¾	.13¾	.13½		.13	.13	.13½	
Union Gold	1					.31	.33¾							
Vindicator	1					1.48	1.55	1 48	1.50					
Work	1					.32½	.32¾				.32¾			
Prosp'cts:														
C.C.Imp	1			.004	.004½	.004	.004¾	.004	.004¾	.004	.004¾			
Illinois	1	.006¾	.01	.007	.01	.008		.007	.009	.007¾				
Old Gold	1	.01¾		.01¾		.01¾	.013¾	.01¾	.01¾	.01¾		.01¾	.01¾	9,000
Puritan	1	.01¾	.01¾	.01¾	.01¾	.01¾	.01¾	.01¾	.01¾	.01¾	.01¾	.0 3	.01¾	116,000
Miscell.:														
Acacia	1	.26				.28	29	.28	.30		.31	.30		
Alamo	1	09	.10	.09¾	.10¾			.09¾		.10				1,000
Aola	1	.04¾						.04¾	.06					
Battle Mt.	1	.32				.33¾	.33¾	.33		.33¾				
Bob Lee	1			.08	.09		.09¾	.08¾	.09¾	.07¾				
C. C. & M.	1			.19¾		.20¾	.21¾	.21¾		.24¾				
De Beers	1							.09						1,000
Des Moines	1			.05¼	.05¼	.05¾	.05¼	.06¾						4,000
Favorite	1		.06	.05¾		.05¾	.05¾		.05¾	.05¾				
G'ld'nEagle	1	.07¾								.50				
Goldstone	1	.02¾	.02¾			.02¼	.02¾	.02¾	.02¾					
Gr'nite Hill	1									.04½	.05			
Magnet B.	1		.06	.05¼	.05¾			.05¾	.05¾	.05¾				
Mobile	1	.05				.04¾		.04¾						
Mt. Beauty	1		.09	.09½	.10		.09¾		.09¾		.09¾			
Trachyte	1							.08¾						

‡ Official Quotations Denver Stock Exchange. Total sales, 142,100 shares.

SAN FRANCISCO, CAL.

Name of Company.	Location.	Par. value.	Oct. 19.	Oct. 20.	Oct. 21.	Oct. 23.	Oct. 24.	Oct. 25.
Alpha Con	Nev.	1.00	.04	.04	.03	.02	.03	.02
Alta	"	2.00	.06	.03	.03	.03	.03	.03
Andes	"	3 00	.09	.09	.09	.08	.08	.07
Belcher	"	3.00	.20	.17	.16	.31	.31	.30
Best & Belcher	"	3.00	.35	.29	.29	.49	.51	.48
Bullion	"	1.00	.04	.03	.07	.08	.08	.07
Caledonia	"	3.00	.65	.50	.55	.58	.56	.45
Challenge Con	"	3.00	.25	.24	.25	.23	.21	.20
Chollar	"	3.00	.32	.29	.29	.50	.30	.27
Confidence	"	3.00	.78	.70	.67	.73	.70	.65
Con. California & Virginia	"	2.50	1.75	1.60	1.60	1.65	1.65	1.60
Cons. Imperial	"	1.00	.01	.01	.01	.01	.01	.01
Crown Point	"	3.00	.15	.12	.13	.12	.12	.11
Gould & Curry	"	3.00	.34	.30	.31	.33	.31	.31
Hale & Norcross	"	3.00	.36	.35	.33	.33	.33	.30
Julia Con	"	1.00	.03	.03	.03	.03	.03	.02
Justice	"	2.00	0.06	.03	.03	.03	.03	.03
Kentuck Con	"	1.00	.03	.04	.04			.03
Mexican	"	3.00	.29	.24	.23	.24	.24	.23
Occidental Con	"	3.00	.18	.15	.15	.16	.15	.14
Ophir	"	3.00	.85	.76	.75	.77	.76	.73
Overman	"	3.00	.18	.17	.17	.17	.16	.13
Potosi	"	3.00	.43	39	.40	.41	.39	.36
Savage	"	2 50	.21	.17	.18	.19	.19	.18
Seg. Belcher & M	"	2.00	1.05	.02	.02	.03	02	01
Sierra Nevada	"	3.00	.62	.55	.56	.57	.56	.54
Standard	Cal.	10.00	3 10	3.05	2.95	2.95	2.95	2.80
Union Con	Nev.	2.50	.35	.31	.31	.32	.32	.32
Utah Con	"	1.00	.11	.10	.10	.09	.09	.08
Yellow Jacket	"	3.00	.26	.24	.23	.22	.22	.20

Official telegraphic quotations of San Francisco Stock Exchange.

TORONTO, ONT.*

Name of Company.	Par val.	Oct. 17. B.	Oct. 17. A.	Oct. 18. B.	Oct. 18. A.	Oct. 19. B.	Oct. 19. A.	Oct. 20 B.	Oct. 20 A.	Oct. 21. B.	Oct. 21. A.	Oct. 22. B.	Oct. 22. A	Sales
Ontario:														
Alice A	$1	.09	.12¾	.09½	.13			.09	.15	.09	.12¾	.09	.12	1.500
Empress	1	.03½	.05	03¾	.04½			.03¾	.04½	.02	.04	.02¼	.04	20,000
Golden Star	1	.27	.28½	.27½	.29½			.27½	.30	.27½	.30	.25	.30	7,400
Ham Reef	1	.20	30	.20	.26			.20	.28	.22	.26	.20	.26	500
British Col.														
Big Three	1	12	16½	12½	.16			12	.16	.12¾	.15	.13	.16	6,000
C'riboooMcK	1	.70	1.25	1.15	1 20			1.20		1.20		.80	1.25	1,000
DeerT'lNo 2	1	.20	.2 ½	.20	.21¼			.19¾	.22	.19	.21	.19½	.22	5,500
Dundee	1	.13	.16	.15	.20			.18	22	.20	.23	.20	.23	9,666
Even'g Star	1	.07	10	07¾	.09¾			.07	.09½	07¾	.09	.07	.09	9,200
FairviewCp	0 25	05½	.07	.0 ¾	07			.05¾	.07	.05¾	.06¾	.05¼	.07	15,000
Knob Hill	1	80	.91	.75	.92			.75	.87	.75	.87	.5	.92½	600
Minnehaha	1	.12	.17	.10	.17			.12	.17	.12¾	.16	.12	.16	1,000
Monte Crist	1	.04	.06	.03½	.05¼			.03½	.05¼	.03½	.05	.03¼	.06	5,500
Morrison	1	.12	.16½	.12	.16¼			.10	.15	.10	.15	.12	.16	500
N'rt'n Belle	1	.01¾	.02¾	.01¾	.02¾			.01¾	.02½	.01¾	.02¾	.01¾	.03	10,000
Novelty	1	.02¾	.03¼	.02¾	.03¼			.02¾	.03¼	.02¾	.03¼	.02¾	.03¼	1,000
Old Ironsides	1	.95	1.14	1.00	1 14			1.00	1.14	1.04	1.17	1.00	1.14	
Payne	1	.84	1.00	.95	1.10			1.03	1.15	1.03	1.10	1.02	1.10	2,500
Prin. Maude	1	.07	.11	.10¼	.11			06¾	.10	.08	.11	.07¾	.12	2,000
Rambler	1	.42	.48	.50	.55			.55	.60	.55	.58	.52	.60	3,000
Rathmullen	1	.07	.08¾	.07	08¼			.07¾	08¾	.07¾	.08¾	.07	.08¾	2,500
Republic	1	1.10	1.16	1 10	1.18			1.21	1.30	1.21¾	1 27	1.20	1.26	3,100
St. Elmo	1	.03	.06	.02¾	.06			.03	.06	.03¾	.07	03¼	06	3,000
Van Anda	1	07¾	09½	.07¾	.08¾			.08¾	.09¼	.08¾	.09	.08¼	.09¾	148,80
Victory Tri.	1	.04	.07	.05½	.07			.05¾	.07¾	.05¾	.07	04¾	.07	58,300
War Eagle	1	2 70	2.83	2.60	2 80			2.80	3.00	2.87	3.00	2.93	3 05	6.0
Waterloo	0.10	.10¾	.12	.11¾	.12¾			.12	.13	.12	.13	.11¾	.13½	12,200
White Bear	1	.03	04	03	.04			.03½	.04¼	.03¼	.04	.03½	.04¼	20,500
Winnipeg	1	.30	.32	.30	.31¾			.29½	.31¾	29	.31¾	29	.33	16,000
Develop Co.														
B.C.G.Flds	1	.02¾	.04¾	.03½	.04¾			.03¼	.04¾	.03¾	.04¾	.02¼	04¾	5,000
Can. G. F. S.	0 10	.05¾	07	.05¾	.07			.05¾	.08	.03¾	.07	.05¾	.08	7,000
Gold Hills	1	.05	.06¾	05	.07			.05	.06¾	.05	.07	.05	.07¾	3,000

*Official quotations of the Standard and Toronto Mining and Industrial Exchanges. Total shares sold, 376,676.

SALT LAKE CITY, UTAH.* Oct. 21.

Stocks.†	No. of shares	Par val.	Bid.	Asked.	Stocks.†	No. of shares.	Par val.	Bid.	Asked
Ajax	300,000	$10	$1.00	$1.50	Homestake	400,000	$1	$0.06¾	$0 10¾
Alice	400,000	25	.45	1.00	Horn Silver	400,000	25	1.10	1.60
Anchor	150,000	10			Joe Bowers	400,000	1	.17¾	.18¾
Buckeye	500,000	1			Little Pittsburg	400,000	5	.03¾	.06
Bullion-Beck & Ch.	100,000	10	3.00	3.97	Lower Mammoth	150,000	1	.27	.28
Centennial Eureka	90,000	50			Mammoth	400,000	5	3.35	3.42
Chloride Point	500,000	1	.25	.36	Mercur	200,000	25	6 96	7.05
Daisy	500,000	3	.19¾	.19¾	Northern Light	400,000	5	.13¾	14¾
Dalton	500,000	5			Omaha	300,000	2	.17	.18
Dalton & Lark	2,500,000	1	.02		Ontario	150,000	100	8.35	9 75
Daly	150,000	20	1.42¾	1.53¾	Richmond-An.	500,000	1	35	1 00
Daly West	150,000	20	12.70	12.80	Sacramento	1,000,000	5	45¾	.47
Dexter	200,000	5	2.45	2.75	Silver King	150,000	20	49 50	52 00
Eagle	150,000	1			Star Consolidat'd	500,000	1	.43¾	.50
Eagle & Blue Bell	250,000	1	1.55	1.75	Sunbeam	250,000	1	.66¾	69
Emerald	300,000	1			Sunshine	250,000	10	29½	.30
Four Aces	250,000	1	.12	.13¾	Swansea	100,000	5	3 80	4 10
Galena	100,000	10	.09	.09¾	South Swansea	150,000	1	1.35¾	1 36¾
Geyser-Marion	300,000	5	.31	.32	Utah	100,000	1	.60	1 0
Grand Central	250,000	1	5 40	5.60	Valeo	200,000	10	.84	.87¾

*From Our Special Correspondent. † Utah companies. § Mines in Vanderbilt, Cal. Mines in Tuscarora, Nev.

ROSSLAND, BRITISH COLUMBIA.* Oct. 19.

Name of Company.	No. of shares.	Par value.	Selling price.	Name of Company.	No. of shares.	Par value.	Selling price.
Brandon & Gold. Cr.	1,500,000	$1	$0.27	Lerwick	500,000	$1	$0.15
Brit. Amer. Corp'at'n	7,500,000	5	4 50	Lily May	1,000,000	1	
Brit.Col. Dev. Co	1,500,000	2½	5.25	Lon.&Van.Pin.Dev.Co	500,000	5	
Canadian Gold Fields	10,000,000	0.10	.10	London B. C. Gold F.	250,000	5	7.50
Cariboo	1,800,000	1	1.20	Monte Cristo	1,000,000	1	
Commander	500,000	1		New Gold Fields, B.C.	250,000	1	5.50
Deer Park	1,000,000	1		Novelty	1,000,000	1	
Dundee	1,000,000	1	.12	Queen Bess Prop	120,000	5	5.25
Evening Star	1,000,000	1		Rambler Con	1,000,000	1	.25
Fern	200,000	¼	.40	Reco	1,200,000	1	
Gold Fields of B.C.	3,000,000	3½		Red Mt.View	1,000,000	1	
Hall Mines	250,000	5	3.25	St. Elmo	1,000,000	1	.05
Hattie Brown	1,000,000	1		St. Paul	1,000,000	1	
Homestake	1,000,000	1	.10	Sarah Lee	1,000,000	1	
Iron Colt	1,000,000	1		Silver Queen	1,500,000	1	.15
Iron Horse	1,000,000	1		Slocan Star	500,000	1	1.20
Iron Mask	500,000	1	.75	Vic.Tr MinesDev. Co.	25,000	5	
Josie	700,000	1		Virginia	500,000	1	
Jumbo	500,000	1		War Eagle Con	2,000,000	1	3.15
Kenneth	1,000,000	1		Waverly Mines	100,000	5	
Keystone	1,500,000	1		White Bear	3,000,000	1	.10
KootenayGold Fields	20,000	5		Wild Horse	400,000	1	

* From Our Special Correspondent.

MEXICO. Oct. 13.

Name of Company.	No. of shares.	Last div'd.	Prices. Op'g	Prices. Cl'g.	Name of Company.	No. of shares.	Last div'd	Prices. Op'g.	Prices. Cl'g.
Chihuahua:					Hidalgo:				
Gloria	1,500		$50	$50	Real del Monte	2,354	10.00	500	520
Durango:					San Francisco Ite	6,000	2.00	195	190
Barradon y Cab	2,400		40	40	San Rafael y An	1,200	12.00	1,000	1,020
Candelaria de Pan.	1,200		20	20	do. aviado	1,200	7.00	400	410
Capuzaya	2,400		30	30	do. del Oro	3,000	5.00	20	20
Penoles	2,500	30.00	2,000	2,000	Soledad	960	5.00	300	330
Restauradora	10,000		20	20	Sorpresa	960	5.00	240	250
Rosario y Anexas	4,800		10	10	Union Hacienda	2,000	5.00	350	340
Guanajuato:					Mexico:				
Angustias	2,400	5.00	305	300	Coronas	500		75	75
Cinco Senores y An	2,000	15.00	350	345	Esperanza y An	3,000	10.00	1,575	1,600
El Oro	500		30	30	Michoacan:				
do. pref.	2,000		30	30	Luz de Borda ava	4,000		20	22
Guadalupe Hacie'a	10,000	2.00	235	240	Pueblo:				
Trinidad, aviador	2,000		48	50	Tlaxuingo	2,400		27	28
do. aviada	400		50	40	S. Luis Potosi:				
Zona Minera de Paz	2,400		60	88	Concep. y An	2,400		180	175
Hidalgo:					Sta.MariadelaPaz	2,400	10 00	720	840
Amistad yConcord.	9,600	1.47	30	29	Zacatecas:				
Arevalo	720		200	200	Asturiana y An	2,500	10.00	180	190
Bartolome de Med.	2,000	3.00	68	64	Cabezon	2,400		15	15
Carmen	1,100	7.75	400	350	C'delar. de Pinos	2,500		135	180
Luz de Maravillas	900		150	120	Palma de Somb	2,400		100	80
Pabellon	800	27.89	30	20					

NOTE.—In most of the older Mexican mining companies the shares have no fixed par value. The capital is formed of a certain number of shares, the total value not being named. Many newer companies have a nominal par value, usually $50 or $100. Prices are in Mexican dollars.

PARIS. Oct. 5.

Name of Company.	Country.	Product.	Capital Stock.	Par value.	Latest divs.	Prices. Op'ning	Prices. Closing.
			Francs.	Fr.	Fr.	Fr.	Fr.
Acieries de Creusot	France	Steel mfrs.	27,000,000	2,000	75.00	1,935.00	1,940.00
" " Firminy	"	" "	3,000,000	500	25.00	3,850.00	3,850 00
" " Five-Lille	"	" "	12,000,000	500	95.00	566.0	560.50
" " Huta-Bank	Russia	Iron & steel		500		4,440.00	4,595.00
" " la Marine	France	Steel mfrs.	20,000,000	500	50.00	1,743.00	1,740.00
" " Longwy	"	" "		500	35.00	1,258 00	1,240.00
Anzin	"	Coal			220.00	6,150.00	6,240.00
Blache-St. Vaast	"	Steel		1,000	160.00	3,800.00	3,800.00
Boleo	Lower Cal.	Copper		500	1.07	2,835.00	2,835.00
Briansk	Russia	Coal & Iron		500		1,225.00	1,225.00
Bruay	France	Coal	3,000,000	400	1,000.00	49,800.00	51,000.00
Cape Copper	S. Africa	Copper	15,000,000	50	1.50	101.50	103.25
Champ d'Or	"	Gold	3,375,000	25	3.75	37.50	36.50
Courrieres	France	Coal	600,000	500	70.00	2,700.00	2,825.00
De Beers Consolidated	S. Africa	Diamonds	98,750,000	125	15.63	605.00	631.00
Denain-Anzin	France	Steel		500	25.00	1,135.00	1,150.00
Dombrowa	Russia	Coal		500	12.50	996.00	1,010.00
Donets	"	Steel				1,160.00	1,166.25
Dourges	"	Coal		1,000	400.00	28,990.00	29,200.00
Dynamite Centrale	France	Explosives		500	12.40	500.00	489 50
Epinac	"	Coal		2,500	31.25	575.00	575.00
Escombrera-Bleyberg	Spain	Lead		500	35.00	1,108.00	1,115.00
Fraser River	Brit. Col'mb	Gold		25		7.00	7.00
Huanchaca	Bolivia	Silver	40,000,000	125	5.00	46.00	54.25
Langlaagte Estate	S. Africa	Gold	11,750,000	25	11.25	80.0	87.00
Lagunas	Chile	Nitrates	16,250,000	125	12.50	28.00	30.00
Laurium	Greece	Zinc & lead	16,300,000	500	30.00	600.00	595.00
Lautaro	Chile	Nitrates	13,750,000	125		105.00	105.00
Maldidano	Italy	Zinc	62,500,000	500	40.00	1,400.00	1,405.00
Metaux, Chc. Fran. de	France	Metal d'lers.	25,000,000	500	30.00	485.00	470.00
Mokta-el-Hadid	Algeria	Iron	18,312,500	500	40.00	1,242.00	1,240.00
Napthe Baku	Russia	Petroleum				815.00	801.00
Napthe, Le	"	"				1,410.00	1,300.00
Napthe Nobel	"	"				660.00	660.00
" " parts	"	"				13,250.00	13,200.00
Nickel	N.Caled'nia	Nickel	10.000.000	250	30.00	367.00	390.00
Penarroya	Spain	Coal, etc		500	65.00	2,435.00	2,430.00
Rebecca	Colo'do,U.S.	Gold	5,000,000	25		4.50	5.50
Rio Tinto	Spain	Copper	40,625,000	125	47.70	1,760.00	1,171.00
" " preferred	"	"	40,625,000	125		154.00	154.00
Rive-de-Gier	France	Coal				22.00	22.50
Robinson	S. Africa	Gold	68,759,000	125	12.50	215.00	220.00
St. Etienne	France	Coal			18.00	466.00	468.00
Salines de l'Est	France	Salt		500	11.50	250.00	250.00
Salines du Midi	France	" etc		500	25.00	870.00	865.00
Seis Gem.de la Rus.Mer	Russia	" etc		500	25.00	595.00	575.00
Tharsis	Spain	Copper	33,750,000	50	8.75	206.50	205.50
Vicoigne-Neux	France	Coal		1,000	720.00	26,000.00	27,000.00
Vielle Montagne	Belgium	Zinc	9,000,000	50	30.00	803.00	810.00

STOCK QUOTATIONS.

LONDON.

Oct. 13.

Name of Company.	Country.	Authorised capital.	Par value.	Last dividend. Amt.	Last dividend. Date.	Quotations. Buyers	Quotations. Sellers
			£ s. d.	s.d.		£ s. d.	£ s. d.
Alaska Goldfields	Alaska	£300,000	1 0 0	2 1	Mar., 1899	1 0 0	1 2 6
Alaska-Mexican, g	"	200,000	1 0 0	0 4.8	July, 1899	17 6	1 2 6
Alaska-Treadwell, g	"	1,000,000	5 0 0	1 6	July, "	5 0 0	5 5 0
Anaconda, c., s	Montana	6,000,000	5 0 0	8 2½	Nov., 1899	9 17 6	10 2 6
Chiapas, g., s., c	Mexico	252,500	1 0 0			5 0	7 0
Con. Gold Fields	"	800,000	1 0 0			15 0	1 1 0
De Lamar, g., s	Idaho	400,000	1 0 0	6	May, 1899	4 0	5 0
Elkhorn Priority (New), s	Colorado	87,500	1 0 0	1 0	June, 1898	1 3	3 9
Golden Gate, g	California	80,000	1 0 0				6
Grand Central, g., s	Mexico	300,000	1 0 0	2 0	Aug., 1899	1 1 3	1 3 9
Hall Mines, c., s	British Col	250,000	1 0 0	1 0	May, 1898	8 9	11 3
Le Roi, g	"	1,000,000	5 0 0	5 0	Nov., 1899	6 7 6	6 12 6
Lillie, g	Colorado	250,000	1 0 0	2½	Oct., 1899	15 0	1 0 0
Montana, g., s	Montana	660,000	1 0 0	6	Apr., 1899	3 3	3 9
Mountain Copper	California	1,250,000	5 0 0	9 0	Sept., 1899	7 12 6	7 17 6
Newfoundland, c	Newfoundland	250,000	1 0 9			5 0	10 0
Palmarejo & Mexican, g., s	Mexico	800,000	1 0 0			2 0	3 0
Plumas Eureka, g	California	281,250	2 0 0	0 6	Oct., 1896	2 6	6 3
Richmond, g., s., l	Nevada	270,000	5 0 0	5 0	Dec., "	5 0	6 3
Sierra Buttes, g	California	245,000	2 0 0	0 6	Apr., "	1 3	3 9
Stratton's Independence	Colorado	1,100,000	1 0 0	2 0	Sept., 1899	2 7 6	2 13 6
Colomb. Hydraulic, g	Colombia	75,000	1 0 0	6	Jan., 1899	3 9	6 3
Copiapo, c	Chile	200,000	2 0 0	6 0	July, 1899	3 10 0	3 15 0
*Frontino & Bolivia, g	Colombia	140,000	1 0 0	1 6	Oct., 1899	2 1 3	2 3 9
St. John del Rey, g	Brazil	600,000	1 0 0	1 3	June, 1899	1 19 0	1 10 6
Tolima A., s., g	Colombia	70,000	5 0 0	1 3	July, 1897	2 10 0	3 0 0
Tolima B., s., g	"	30,000	5 0 0	5 0	" "	1 10 0	2 0 0
UtahCon. g (HighFndBoy)	Utah	800,000	1 0 0	rts.	Mar., 1898	7 10 0	8 0 0
Velvet, g	BritishCol'mbia	100,000	1 0 0			1 5 0	1 7 6
Ymir, g	"	200,000	1 0 0	1 0	Oct., 1899	1 2 6	1 7 6
British Am. Corp.	"	1,500,000	1 0 0	rts.	Dec., 1898	1 1 0	1 1 6
*Linares, l	Spain	45,000	3 0 0	12 6	Oct., 1899	7 10 0	8 10 0
Mason & Barry, c., sul	Portugal	630,000	2 0 0	5 0	May, 1899	3 15 0	4 0 0
Rio Tinto, c	Spain	1,625,000	5 0 0	1 15	Nov., 1899	47 17 6	48 0 0
" pref	"	1,625,000	5 0 0	2 6	" 1899	6 3 9	6 5 0
Tharsis, c	"	1,250,000	2 0 0	11 0	May, 1898	8 0 0	6 10 0
Libiola, c	Italy	252,000	5 0 0	1 6	Sept., 1899	1 12 6	1 17 6
Assoc. Gold Mines	W. Australia	500,000	1 0 0	4 0	Oct., 1899	12 15 0	13 0 0
Broken Hill Prop., s	N.S. Wales	364,000	8 0 0	1 0	Oct., 1899	2 2 6	2 3 0
Great Boulder, Prop	W. Australia	1,750,000	2 0 0	6	Sept., 1899	1 18 0	1 19 0
Hannan's Brownhill, g	"	110,000	1 0 0	7 6	Nov., 1899	12 8 9	12 11 3
Ivanhoe Gold Corp	"	1,000,000	5 0 0	5 0	Oct., 1899	17 2 6	17 7 6
Kalgurlie, g	"	120,000	1 0 0	rts.	Feb., 1899	0 2 6	0 3 6
Lake View Consols, g	"	250,000	1 0 0	£1	Nov., 1899	21 5 0	21 10 0
*Mt. Lyell M. & R., l., c	Tasmania	975,000	3 0 0	4 0	Oct., 1899	10 2 6	10 5 0
*Mt Morgan, g	Queensland	1,000,000	1 0 0	6	Oct., 1899	5 2 6	5 5 0
Waihi, g	New Zealand	320,000	1 0 0	2 0	Oct., 1899	8 2 6	8 5 0
West Aust. Jt. Stk. L. & F	W. Australia	1,000,000	1 0 0	1 0	Dec., 1898	3 5	4 6
Champion Reef, g	Colar Fields	220,000	10 0	3 6	May, 1899	5 0 0	5 2 6
Mysore Gold, g	"	250,000	10 0	4 6	Nov., 1899	5 6 9	5 11 3
Nundydroog, g	"	242,000	1 0 0	2 0	" 1899	2 17 6	3 0 0
Ooregum, g	"	145,000	1 0 0	6	Aug., 1899	3 8 9	3 11 3
" pref. g	"	120,000	1 0 0	2 6	" 1899	4 8 9	4 11 3
Angelo, g	Transvaal	275,000	1 0 0	5 0	Mar., 1899	6 10 0	6 15 0
Bonanza, g	"	200,000	1 0 0	11 0	June, 1898	4 0 0	4 5 0
British S. Af., chartered	So. Africa	5,000,000	1 0 0	rts.	May, 1899	2 13 9	2 16 3
Cape Copper, c	"	600,000	1 0 0	5 0	July, 1899	4 15 0	4 17 6
" pref	"	150,000	2 0 0	8 0	" 1899	4 18 0	5 0 0
City & Suburban (New), g	Transvaal	1,360,000	4 0 0	8 0	Aug., 1899	4 17 6	5 2 6
Con Deep Level, g	"	200,000	1 0 0	x all.	June, 1898	1 5 0	1 10 0
Crown Reef, g	"	120,000	1 0 0	18 0	Nov., 1899	14 5 0	14 15 0
De Beers Con., d	Cape Colony	3,950,000	5 0 0	£1	June, 1899	25 2 6	25 7 6
Durban Roodepoort, g	Transvaal	135,000	1 0 0	5	Oct., 1899	5 5 0	5 10 0
Ferreira, g	"	90,000	1 0 0	30 0	Aug., 1899	20 5 0	20 15 0
Geldenhuis Deep, g	"	350,000	1 0 0	8 0	Aug., 1899	8 10 0	9 0 0
Geldenhuis Est., g	"	200,000	1 0 0	10 0	Aug., 1899	6 0 0	6 5 0
Ginsberg, g	"	160,000	1 0 0	5 0	Aug., 1899	2 17 6	3 2 6
Henry Nourse, g	"	125,000	1 0 0	10 0	Aug., 1899	7 7 6	7 12 6
Heriot (New), g	"	115,000	1 0 0	5 0	Sept., 1899	6 2 6	6 7 6
Jagersfontein, d	Orange Fr. St	1,000,000	5 0 0	9 0	June, 1899	12 10 0	13 0 0
‡Johannesburg Con. Invst	So. Africa	50,000	1 0 0	2 0	Aug., 1897	1 8 9	1 11 3
Jubilee, g	Transvaal	50,000	1 0 0	5 0	Aug., 1899	5 0 0	5 10 0
Jumpers, g	"	100,000	1 0 0	4 0	Nov., 1899	4 10 0	4 15 0
Kleinfontein, g	"	275,000	1 0 0	2 0	Mar., 1899	2 5 0	2 7 6
Langlaagte Estate, g	"	500,000	1 0 0	3 0	Sept., 1899	3 5 0	3 10 0
May Con., g	"	275,000	1 0 0	6 6	Aug., 1899	4 3 9	4 5 0
Meyer & Charlton, g	"	85,000	1 0 0	8 0	Jan., 1899	5 2 6	5 7 6
Namaqua, c	Cape Colony	200,000	1 0 0	6 6	June, 1899	4 8 9	4 11 3
Primrose (New), g	Transvaal	300,000	1 0 0	6 0	Aug., 1899	3 16 3	3 18 9
Rand Mines, g	So. Africa	490,000	1 0 0	15 6	Aug., 1899	32 7 6	32 12 6
Robinson, g	Transvaal	2,750,000	5 0 0	8 0	Aug., 1899	8 10 0	8 15 0
Sheba, g	"	1,100,000	1 0 0	0 6	July, 1898	16 3	1 1 3
Sim. & Jack Prop., g	"	5,000,000	5 0 0	4 0	July, 1899	5 5 0	5 10 0
Wemmer, g	"	90,000	1 0 0	15 0	June, 1899	11 5 0	11 15 0
Wolhuter, g	"	880,000	4 0 0	2 0	Feb., 1899	3 17 6	4 2 6
Worcester, g	"	100,000	1 0 0	3 0	July, 1899	2 0 0	2 10 0

*Ex-dividend. ‡Dividend pending

MEETINGS.

Name of Company.	Location	Meeting.	Date.	Place of Meeting.
Alpha Con	Nevada	Annual	Oct. 31.	309 Montgomery st., San Francisco, Cal.
Anchor	Utah	"	Nov. 17.	Park City, Utah.
Andes	Nevada	"	Dec. 18	309 Montgomery st., San Francisco, Cal.
Challenge Con	Nevada	"	Nov. 16.	Mills Building, San Francisco, Cal.
Chrysolite	Colorado	"	Nov. 5.	80 Broadway, New York City.
Confidence	Nevada	"	Nov. 10.	414 California st. San Francisco, Cal.
Copper Queen	Arizona	"	Dec. 7	Salt Lake City, Utah.
E. Best & Belcher	California	"	Nov. 22.	331 Montgomery st , San Francisco, Cal.
Enterprise	Colorado	"	Nov. 21.	84 Montgomery st., Jersey City, N. J.
Great Western, q	California	"	Nov. 6.	530 California st., San Francisco, Cal.
Mexican	Nevada	"	Dec. 6	309 Montgomery st , San Francisco, Cal.
N. Gould & Curry	Nevada	"	Nov. 20	437 Pine st , San Francisco, Cal.
Occidental Con	Nevada	"	Nov 20	309 Montgomery st., San Francisco, Cal.
Puget Sound Iron	California	"	Nov. 15	530 California st , San Francisco, Cal.
Santa Rosalia	California	"	Dec. 15.	310 Pine st , San Francisco, Cal.
Siskiyou Con	California	"	Nov. 4.	306 Pine st , San Francisco, Cal.

ASSESSMENTS.

Name of Company.	Location.	Sec.	Dlq.	Sale.	Amt.	Office.
			Aug.			
R. G. W	Utah	2	17	Nov. 4	.01	34 W. 2d South st., Salt Lake City.
			Sept.			
Eureka Con. D	Cal.	20	12	Sept. 30	.00½	1,209 Claus Spreckels Bldg., S. Fra'co.
			Oct.			
Belcher	Nev.	62	25	Nov. 15	.15	Mills Bldg., San Francisco, Cal.
Best & Belcher	Nev.	68	27	Nov. 17	.20	309 Montgomery st., San Francisco.
Bingham Placer	Utah	1	16	Nov. 18	.10	201 McCornick Block, Salt Lake City
Bullion	Nev.	15	24	Nov. 14	.05	331 Pine st., San Francisco, Cal.
California Borax	Cal.	1	30	Nov. 28	2 00	310 Pine st., San Francisco, Cal.
Con. Cal. & Va	Nev.	14	11	Nov. 1	.25	309 Montgomery st., San Francisco.
Eureka Con.	Nev.	16	10	Oct. 30	.10	Laidlaw & Co., 14 Wall st., N. Y.
Gerrymander	Cal.		30		.10	
Marina Marsican	Cal.	20	24	Nov. 15	.05	217 Sacramento st., San Francisco.
Salmon River	Mont		20	Nov. 15	.02½	19 W. Granite st., Butte, Mont.
Success	Utah	7	21	Nov. 11	.01	617 McCornick Block, Salt Lake City
Sunbeam Con	Utah	24	5	Nov. 21	.10	419 Dooly Block, Salt Lake City.
			Nov.			
Aetna	Id'ho		6	Nov. 27	.00½	Salt Lake City, Utah.
Andes	Nev.	49	6	Nov. 27	.05	3 9 Montgomery st., San Francisco.
Confidence	Nev.	33	23	Dec. 14	.15	414 California st., San Francisco, Cal.
Con. Imperial	Nev.	43	14	Dec. 5	.01	Mills Bldg., San Francisco, Cal.
Con. St. Gothard	Cal.		9		.10	
Con. Oil & Dev	Cal.	1	16	Dec. 2	.10	503 California st., San Francisco.
Crown Point	Nev.	77	23	Dec. 14	.10	Mills Bldg., San Francisco, Cal.
Ford	Cal.		1		.04	
Hale & Norcross	Nev.	3	7	Nov. 28	.10	331 Pine st., San Francisco, Cal.
Inyo Marble	Cal.	33	6	Dec. 6	.05	Mills Bldg., San Francisco, Cal.
Justice	Nev.	66	22	Dec. 14	.05	309 Montgomery st , San Francisco.
Lady Wash. Con.	Nev.	12	16	Dec. 7	.05	309 Montgomery st., San Francisco.
Mariposa Com'l.	Cal	13	8	Dec. 5	10 00	320 Sansome st., San Francisco, Cal.
Mexican	Nev.	62	13	Dec. 4	.15	309 Montgomery st., San Francisco.
Old Home Con	Cal		18		.01½	
Ophir	Nev.	76	14	Dec. 4	.20	309 Montgomery st., San Francisco.
Osceola Con	Cal.	8	11	Dec. 6	.01	307 Montgomery st., San Francisco.
Revenue	Utah	2	6	Dec. 11	.02	419 Dooly Block, Salt Lake City.
Reward	Cal.		4		.02½	
Seg. Belcher & Mides	Nev.	24	2	Nov. 22	.05	309 Montgomery st., San Francisco.
Tanana	Cal.		17		.10	

DIVIDENDS.

Name of Co.	Date.	Am't.	Paid 1899.	Grand Total.	Name of Co	Date.	Am't.	Paid 1899.	Grand Total.	Name of Co.	Date.	Am't.	Paid 1899.	Grand Total.
Alamo, Utah			$2,500	$2,530	De Lamar, Idaho			$48,000	$2,346,000	Napa Con.*	Oct. 2	$30,000	$90,000	$1,040,000
Alaska-Mexican	Oct. 28	$18,000	72,000	429,031	El Dorado, Cal			10,000	10,000	New Idria	Oct. 2	30,000	90,000	170,000
Alaska-Treadwell	Oct. 28	75,000	300,000	4,220,000	Elkton, Colo		$37,500	37,500	694,461	New York Zinc	Oct. 2	7,000	7,000	7,000
Ætna Con.	Oct. 2	15,000	45,000	195,000	Empire State, Ida.	Oct. 16	29,554	197,027	258,929	N.Y.& H.-Rosario	Oct. 20	15,000	135,000	1,125,000
AmalgamatedCop.	Oct. 16	1,500,000	1,500,000	1,500,000	Fanny Rawlings			20,000	20,000	North Star, Cal			50,000	550,000
American Gold			48,000	434,000	Ferris-H'g'ty, Wyo			5,000	5,000	Olive			12,000	12,000
American I.&R. p	Oct 10	568,750	568,750	568,750	Garfield Con			12,000	34,000	Okanogan, Wash.	Oct. 2	3,125	3,125	3,125
American Zn. Mg	Oct. 12	10,000	10,000	10,000	Gold Coin, Vict	Oct 25	10,000	100,000	250,000	Orig. Empire, Cal.	Oct. 13	50,000	100,000	550,000
Am. Zinc-L. & Sm.	Oct. 2	20,000	40,000	40,000	Golden Cycle	Oct. 18	10,000	85,000	238,500	Osceola			279,000	2,801,500
Anaconda Copper	Nov. 1	2,400,000	3 900,000	12,150,000	Golden Eagle, Col.			5,000	5,000	Parrot	Oct. 12	345,000	897,000	3,035,898
Anchoria-Leland	Oct 16	18,000	72,000	234,000	Gold King, Col	Oct 25	30,000	90,000	90,000	Pennsylvania, Cal	Oct. 8	10,300	47,650	115,875
Apollo Con., Alas			40,000	140,000	Golden M. & Ex			10,000	10,000	PennsylvaniaCoal			800,000	14,050,000
April Fool, Nev	Oct. 25	5,000	16,000	16,000	Grafton, Colo	Nov. 1	10,000	10,000	10,000	Petro, Utah			10,000	27,500
Argonaut, Cal	Oct 26	20,000	200,000	380,000	Grand Central, Ut.			347,500	666,250	Pioneer, Cal			12,500	62,500
Associated, Colo			12,000	84,000	Grass Valley Ex.	Oct. 20	7,500	30,000	30,000	Portland			540,000	2,377,080
Aurora Iron			50,000	800,000	Gwin, Cal	Oct. 12	5,000	40,000	21,500	Quicksilver (Pref.)			21,500	1,845,411
Bald, Butte	Oct. 11	15,000	112,500	762,141	Helena & Frisco			125,000	550,000	Quincy			950,000	11,070,000
Bonanza, Wash			5,000	5,000	Hidden Treas., Cal			3,600	3,600	Raven, Colo	Nov 20	10,000	20,000	49,500
Bona'za Dev., N.M			1,050,000	1,550,000	High Five, Colo			10,000	10,000	Republic, Wash			157,500	323,000
Boston-Aurora	Oct. 25	5,328	21,312	21,312	Holy Terror			25,000	142,000	Royal, B. C			50,000	1,050,000
Boston & Colo. Sm.	Oct. 2	11,250	45,000		Homestake	Oct. 25	105,000	752,500	7,933,750	Sacramento	Oct. 1	5,000	50,000	138,000
Boston-Duenweg, z	Oct. 5	4,000	24,000	24,000	Horn Silver			20,000	5,250,000	St. Joseph Lead			75,000	2,859,500
Boston-LittleC Zn	Oct. 1	15,000	60,000	60,000	Isabella			202,500	472,500	Santa Rosalie, Cal.			5,000	130,000
Boston Provid'nce	Oct. 2	750	9,750	9,750	Jack Pot			75,000	75,000	Silver King	Oct. 10	50,000	475,000	2,300,000
Boston Quick, Cal.	Oct. 2	10,000	10,000	10,000	Jamison, Cal			11,700	50,700	Small Hopes			25,000	3,325,000
Boston & Cal.			72,000	72,000	Lake Superior Ir			84,000	227,880	Smuggler	Oct 16	15,000	105,000	1,200,000
Boston & Mont	Nov 20	2,225,000	5,375,000	14,500,000	Last Dollar, Colo.	Nov. 1	20,000	20,000	20,000	South Swansea			37,500	150,000
Breece			30,000	30,000	Lillie	Oct. 2	11,250	112,500	279,110	Standard, Cal			46,000	3,879,226
Bul. Bec. & Champ.	Oct. 15	10,000	100,000	2,418,400	Little Tiger, Cal	Oct. 16	7,500	17,500	17,500	Standard, Ida			30,000	1,745,000
Bunker Hill & S.	Oct. 4	21,000	126,000	725,000	Mammoth	Oct. 2	40,000	220,000	1,570,030	Stratton's Inde'ce			488,000	488,000
Calumet & Hecla			8,000,000	64,850,000	Marion Con., Colo.			5,000	300,000	Swansea	Oct. 10	5,000	50,000	241,000
Centen'l Eureka			120,000	2,150,000	M'y McKinney, Col	Nov. 1	30,000	30,000	30,000	Tamarack			240,000	5,910,000
Central Lead	Oct. 16	5,000	50,000	132,000	Mead, Cal			40,000	120,000	Tomboy			80,000	730,000
Champion, Cal			8,500	304,700	Mercur	Oct. 20	50,000	100,000	1,341,000	United Z.&L., pfd.	Oct. 16	20,000	40,000	40,000
Charleston, S. C			20,000	200,000	Mo. Zinc Fields, pfd	Oct. 12	2,664	15,984	15,984	Utah, Utah			2,000	179,000
olorado Sm.			100,000	1,945,000	Modoc	Oct. 16	5,000	95,000	175,000	Vindicator	Oct. 20	50,750	177,625	304,500
Colonial Lead, Mo.			10,000	10,000	Montana, Ltd			98,855	453,700	War Eagle, B. C.	Oct. 16	26,250	262,500	440,250
Com'wealth Z. pref	Nov. 1	10,000	10,000	10,000	Mont. Ore Pur	Oct. 27	80,000	560,000	1,360,000	Weath. Bonanza			1,562	1,562
Consolidation Coal			205,000	5,716,650	Moon-Anchor, Colo	Nov. 1	45,000	45,000	306,000	Wolverine	Oct. 2	120,000	210,000	270,000
Daly-West, Utah	Oct. 25	30,000	30,000	30,000	Morning Star, Cal.	Oct. 16	7,200	63,60-	751,800	Yellow Aster	Oct. 9	10,000	95,000	263,789
Delta L. & Z., Mo	Nov 1	820	3,280	3,280	Moulton, Mont	Oct. 25	20,000	40,000	500,000					
D'rTr'l No 2, Wash	Oct. 25	2,500	25,000	42,500	Mountain Copper	Oct. 13	540,000	1,080,000	1,173,750	Grand Total		$8,778,733	$34,238,820	209,792,820
Doe Run, Mo	Oct. 16	2,500	25,000	85,000	Mt. Shasta, Cal			6,000	6,000					

DIVIDEND-PAYING MINES.

	Name and Location of Company.		Capital Stock.	Shares. No.	Shares. Par Val	Assessments. Total Levied.	Assessments. Date and Amount of Last.			Dividends. Total Paid.	Dividends. Date and Amount of Last.		
1	Ætna Cons., q	Cal..	$500,000	100,000	$5	*				$195,000	Oct..	1899	.10
2	Alaska-Mexican, g	Alask	1,000,000	200,000	5					411,081	July..	1899	.10
3	Alaska-Treadwell, g	Alask	5,000,000	200,000	25	*				4,145,000	July..	1899	.37½
4	Alamo, g. c. i	Utah.	125,000	125,000	1	$937	Mar..	1898	.00¼	2,500	April.	1899	.02
5	Alice, g. s	Mont.	10,000,000	400,000	25	*				1,075,000	April.	1898	.05
6	Amalgamated, c	Mont.	75,000,000	750,000	100					1,500,000	Oct..	1899	2.00¼
7	American Coal	Md...	1,500,000	60,000	25					727,500	Sept..	1899	1.25
8	American Gold, g. s. c. l	Colo..	3,000,000	300,000	10	*				434,000	June.	1899	.09
9	Amer. Sm. &Ref., pref.	U. S..	32,500,000	32,500	100					568,750	Oct..	1899	1.75
10	Am. Zinc, Lead & Sm	Mo...	500,000	200,000	25					40,000	Oct..	1899	.10
11	Anaconda Copper	Mont.	30,000,000	1,200,000	25					12,150,000	Nov..	1899	2.00
12	Anchoria-Leland, g	Colo..	600,000	600,000	1	*				198,000	April	1899	.03
13	Appie Ellen, g	Colo.	600,000	600,000	1					25,000	Aug..	1898	.01
14	April Fool	Nev..	500,000	500,000	1					11,000	Sept..	1899	.01
15	Argonaut	Cal...	2,000,000	200,000	10					340,000	Aug..	1899	.10
16	Associated, g	Colo..	1,250,000	1,250,000	1	*				84,000	Feb..	1899	.01
17	Atlantic, c	Mich.	1,000,000	40,000	25					780,000	Feb..	1898	1.00
18	Aurora, i	Mich.	2,500,000	100,000	25	*				890,000	June.	1899	.50
19	Bald Butte	Mont.	250,000	250,000	1	*				747,141	Sept..	1899	.06
20	Big Six, g. s	Colo..	500,000	500,000	1					15,000	May..	1898	.00½
21	Bonanza	Wash	1,000,000	1,000,000	1	*				5,000	Sept..	1899	.00¼
22	Bonanza, Dev	NMex	3,000,000	300,000	10					1,500,000	June.	1899	3.50
23	Boston-Aurora, pref	Mo...	800,000	32,000	25					15,984	Sept..	1899	.17
24	Boston & California	Cal..	600,000	600,000	1					72,000	June.	1899	.06
25	Boston-Little Circle, z.	Mo-K.	1,000,000	100,000	10	*				45,000	Sept..	1899	.15
26	Boston & Mont. Con	Mont.	3,750,000	150,000	25	*				12,275,000	Aug..	1899	10.00
27	Boston, q	Cal...	1,000,000	100,000	10	*				10,000	Oct..	1899	.10
28	Breece, i	Colo..	5,000,000	200,000	25					60,000	Sept..	1899	.05
29	Bullion-Beck & Champ.	Utah.	1,000,000	100,000	10	*				2,408,400	Sept..	1899	.10
30	Bunker Hill & S., s. l	Idaho	3,000,000	300,000	10					705,000	May..	1899	.07
31	Calumet & Hecla, c	Mich.	2,500,000	100,000	25					64,850,000	Sept..	1899	20.00
32	Centen l-Eureka, g.s.l.c	Utah.	1,500,000	30,000	50	30,000	Mar..	1889	1.00	2,150,000	Aug..	1899	.50
33	Central Lead, l	Mo...	1,000,000	10,000	100	*				127,000	Sept..	1899	.50
34	Champion, g. s	Cal...	340,000	34,000	10					296,200	April.	1898	.25
35	Charleston, p. r	S. C..	1,000,000	10,000	100	*				200,000	June.	1892	2.00
36	Consolidation Coal	Md...	10,250,000	102,500	100					5,716,650	Feb..	1899	2.00
37	Con. Tiger & Poorman	Idaho	1,000,000	1,000,000	1	*				20,000	Dec..	1898	.02
38	Crœsus, g	Cal...	1,000,000	200,000	5					30,000	Dec..	1898	.15
39	Crowned King, g. s. l	Ariz.	6,000,000	600,000	10	*				232,000	Dec..	1898	.02
40	Deadwood-Terra, g	S. D..	5,000,000	200,000	25	*				1,350,000	May..	1898	.15
41	De Lamar, g. s	Idaho	2,000,000	400,000	5					2,346,000	May	1899	.12
42	Delta Lead & Zinc	Mo...	100,000	100,000	1	*				2,460	Oct..	1899	.00¼
43	Deer Trail No. 2	Wash	1,000,000	1,000,000	1					40,000	Sept..	1899	.00¼
44	Doe Run, l	Mo...	500,000	5,000	100					85,000	Sept..	1899	.50
45	Elkton Cons., g	Colo..	1,250,000	1,250,000	1					604,461	Sept..	1899	.03
46	El Paso, g. s	Colo..	650,000	650,000	1					12,393	Jan..	1898	.01
47	Empire State-Idaho	Idaho	1,000,000	100,000	10					229,375	Sept..	1899	.30
48	Enterprise, s. l	Colo..	500,000	500,000	1					900,000	Sept..	1898	.05
49	Fanny Rawlings, g. s.	Colo..	1,000,000	1,000,000	1					20,000	Aug..	1899	.01
50	Ferris-Haggarty, c.g.s.	Wyo.	1,000,000	1,000,000	1					5,000	Mar..	1899	.00½
51	Garfield Con., g	Colo.	1,200,000	1,200,000	1					34,000	May..	1899	.01
52	Geyser-Marion, g	Utah.	1,500,000	300,000	5					96,000	Sept..	1898	.02
53	Gold Coin of Victor, g	Colo..	1,000,000	1,000,000	1					240,000	Sept..	1899	.01
54	Golden Cycle, g	Colo..	1,000,000	200,000	5					228,500	Sept..	1899	.05
55	Gold King, g	Colo..	1,000,000	1,000,000	1					60,000	July..	1899	.03
56	Golden Eagle, g	Colo..	500,000	500,000	1					5,000	July..	1899	.01
57	Golden Reward, g	S. D..	1,000,000	100,000	10					155,000	Feb..	1898	.15
58	Grand Central, g	Utah.	250,000	250,000	1					666,250	Sept..	1899	.24
59	Grass Valley Expl	Cal...	100,000	30,000	2	*				22,500	July..	1899	.25
60	Gwin, g	Cal...	1,000,000	20,000	50	286,000	Jan..	1898		81,500	Aug..	1899	.25
61	Helena & Frisco, l. s	Idaho	2,500,000	500,000	5	*				550,000	June.	1899	.25
62	Holy Terror, g	S. D..	500,000	500 600	1					142,000	July..	1899	.01
63	Homestake, g	S. D.	21,000,000	210,000	100	200,000	July..	1878	1.00	7,828,750	Sept..	1899	.50
64	Horn-Silver, g. s. c. sp. l.	Utah.	10,000,000	400,000	25	*				5,279,000	July..	1899	.05
65	Iowa, g	Colo..	1,000,000	1,000,000	1					95,000	June.	1898	.00½
66	Iron Mountain, g. s. l. i.	Mont.	5,000,000	500,000	10	*				507,500	April.	1898	.02
67	Isabella, g	Colo..	2,250,000	2,250,000	1					472,500	Sept..	1899	.01
68	Jack Pot, g	Colo..	1,250,000	1,250,000	1					75,000	Sept..	1899	.04
69	Jamison	Cal ..	3,900,000	390,000	10	144,000	Nov..	1896	.17	50,700	April.	1899	.10
70	Lake Superior Iron	Mich.	2,100,000	84,000	25					736,000	Feb..	1899	1.00
71	Lillie, g	Colo..	1,250,000	250,000	5					279,110	Sept..	1899	.05
72	Mammoth, g. s. c	Utah.	10,000,000	400,000	25	*				1,530,000	Sept..	1899	.15
73	Marion Con	Colo.	5,000,000	500,000	10	*				300,000	May..	1899	.01
74	Matoa, g	Colo..	1,000,000	1,000,000	1					25,000	Dec..	1898	.02½
75	Mead, g	Cal...	200,000	200,000	1					120,000	June.	1899	.20
76	Mercur, g	Utah.	5,000,000	200,000	25	*				1,291,000	July..	1899	12½
77	Minnesota Iron	Minn.	16,500,000	165,000	100	*				4,735,000	Oct..	1898	1.50
78	Missouri Zinc Fields, pf	Mo...	400,000	16,000	25					13,320	Sept..	1899	.17
79	Modoc, g	Colo..	500,000	500,000	1					170,000	Sept..	1899	.02
80	Montana, Ltd., g. s	Mont.	3,300,000	657,128	5	*				453,700	April.	1899	.12
81	Montana Ore Purchas'g	Mont.	2,500,000	80,000	25	*				1,280,000	Sept..	1899	1.00
82	Moon-Anchor Con,, g	Colo..	1,750,000	600,000	1					261,000	Nov.	1898	.07½
83	Morning Star, g	Cal...	240,000	2,400	100	70,800	Feb..	1887	.75	744,500	Sept..	1899	3.00
84	Mt. Rosa, g	Colo..	1,000,000	1,000,000	1					60,000	Jan..	1898	.02
85	Mt. Shasta	Cal...	100,000	20,000	5					6,000	May..	1899	.30
86	Moulton	Mont.	2,000,000	400,000	5					480,000	Feb..	1899	.05
87	Mountain Copper	Cal ..	6,250,000	250,000	25					633,750	Sept..	1899	2.16
88	Napa Cons., q	Cal ..	700,000	100,000	7	*				1,040,000	Oct..	1899	.30
89	New Central Coal	Md...	1,000,000	50,000	20					470,000	April.	1899	.40
90	New Idria, q	Cal...	500,000	100,000	5					170,000	Oct..	1899	.30
91	New York Zinc	Mo...	700,000	28,000	25					7,000	Oct..	1899	.25
92	N.Y.&Hon Rosario,s.g.	C. A..	1,500,000	150,000	10	*				1,110,000	Sept..	1899	.10
93	North Star, g	Cal...	5,000,000	500,000	10	20,000	June	1885	.02	550,000	April.	1899	.25
94	Nugget	Colo..	1,000,000	1,000,000	1					20,000	Aug..	1898	.00½
95	Orphan Bell, g	Colo..	1,000,000	1,000,000	1					115,000	Mar..	1898	.01
96	Original Empire, g	Cal...	5,000,000	50,000	100	92,500	Aug..	1896	1.25	500,000	May..	1899	1.00
97	Osceola, c	Mich.	2,500,000	93,000	25	*				2,801,500	June.	1899	3.00
98	Parrot, c	Mont.	2,300,000	230,000	10	*				2,690,898	May..	1899	1.50
99	Pennsylvania Coal	Pa...	5,000,000	100,000	50					14,050,000	May..	1899	8.00
100	Pennsylvania Cons	Cal...	5,150,000	51,500	100	50,051	Feb..	1892	.05	105,575	Sept..	1899	.20
101	Petro, g	Utah.	1,000,000	200,000	5					5,000	July..	1899	.02½
102	Pioneer g	Cal...	1,000,000	100,000	10					62,500	Mar..	1899	.12½
103	Portland, g	Colo..	3,000,000	3,000,000	1	*				2,347,080	Sept..	1899	.02
104	Quicksilver, pref	Cal...	4,300,000	43,000	100					1,845,411	May..	1899	.50
105	Quincy, c	Mich.	2,500,000	100,000	25	*				11,070,000	Aug..	1899	6.00
106	Raven, g	Colo..	1,500,000	1,500,000	1					29,500	Sept..	1899	.00½
107	Republic Cons., g	Wash	3,500,000	3,150,000	1					323,000	Sept..	1899	.01
108	Sacramento, g	Utah.	5,000,000	1,000,000	5					133,000	Sept..	1899	.00½
109	St. Joseph, l	Mo...	3,000,000	300,000	10	*				2,859,500	June.	1899	.50
110	Santa Rosalia, g.s	Cal...	100,000	100,000	1					125,000	Feb..	1898	1.10
111	Silver King, g. s. l	Utah.	3,000,000	150,000	20	3,000	Jan..	1897	.02	2,250,000	Sept..	1899	.25
112	Small Hopes, s	Colo..	5,000,000	250,000	20	*				3,325,000	Feb..	1899	.10
113	Smuggler, s. l. z	Colo..	1,000,000	1,000,000	1					1,185,000	Sept..	1899	.01
114	South Swansea, s. l	Utah.	150,000	150,000	1					150,000	Sept..	1899	.05
115	Standard Cons., g. s	Cal...	2,000,000	200,000	10	99,888	June.	1890	.50	3,879,226	Aug..	1899	.10
116	Standard	Idaho	500,000	500,000	1					1,745,000	April.	1899	.06
117	Stratt n's Independ'ce	Colo.	5,500,000	1,100,000	5	*				480,000	Sept..	1899	.48
118	Swansea, s. l	Utah.	500,000	100,000	5					241,000	Oct..	1899	.05
119	Tamarack, c	Mich.	1,500,000	60,000	25					5,910,000	June.	1899	4.00
120	Tomboy, g	Colo..	2,000,000	200,000	10					730,000	May..	1899	4.00
121	United, z. l., pref	Mo...	1,000,000	40,000	25	*				20,000	July..	1899	.50
122	Utah	Utah.	1,000,000	100,000	10	*				179,000	Jan..	1899	.02
123	Victor, g	Colo..	1,000,000	200,000	5	*				1,155,000	Dec..	1898	.50
124	Vindicator, Cons. g	Colo..	1,500,000	1,015,000	1					253,750	July..	1899	.05
125	War Eagle, Cons	B. C..	2,000,000	1,750,000	1					414,000	Sept..	1899	.01½
126	Wolverine, c	Mich.	1,500,000	60,000	25	180,000	Mar..	1895	1.00	270,000	Oct..	1899	1.50
127	Yellow Aster, g	Cal...	1,000,000	100,000	10	*				253,789	Sept..	1899	.10

NON-DIVIDEND-PAYING MINES.

	Name and Location of Company.		Capital Stock.	Shares. No.	Shares. Par Val	Assessments. Total Levied.	Assessments. Date and Amount of Last.		
1	Ada Cons., s. l	Utah.	$100,000	100,000	$1	$3,333	Nov..	1895	.01½
2	Alliance, g. s. l	Utah.	150,000	150,000	1	200,000	Dec..	1895	.10
3	Allouez, c	Mich.	2,500,000	100,000	25	1,520,937	June.	1894	1.00
4	Alpha Cons., g. s	Nev..	105,000	105,000	1	319,200	Aug..	1899	.03
5	Alta, s	Nev..	216,000	108,000	2	3,675,710	June.	1899	.05
6	Alta	Utah.	750,000	750,000	1	938	Mar..	1899	.00½
7	American Quartz, g	Cal..	1,000,000	100,000	10	1,000	Feb..	1897	.01
8	Anchor, g. s. l	Utah.	1,500,000	150,000	10	560,000	Aug..	1893	.20
9	Andes, g	Nev..	300,000	100,000	3	1,205,000	June.	1899	.05
10	Arnold, c	Mich.	1,500,000	60,000	25	180,000	Jan..	1899	3.00
11	Baliol, g	Cal..	1,000,000	100,000	10	55,000	Mar..	1898	.30
12	Belcher, s. g	Nev..	312,000	104,000	3	3,535,600	Aug..	1899	.10
13	Belle Isle	Nev..	10,000,000	100,000	100	240,271	July..	1896	.10
14	Benton Con. s	Nev..	10,800,000	108,000	100	587,023	June.	1897	.25
15	Best & Belcher, g. s	Nev..	302,400	100,800	3	2,609,803	Aug..	1899	.10
16	Bogan	Utah.	1,250,000	125,000	10	26,875	Dec..	1897	.01½
17	Boston & Cp. Ck., g	Colo..	400,000	200,000	2	20,000	Aug..	1898	.10
18	Brunswick Cons., g	Cal...	500,000	500,000	1	160,000	July..	1897	.03
19	Bullion, s. g	Nev..	100,000	100,000	1	3,125,000	May..	1899	.05
20	Caledonia	Nev..	300,000	200,000	3	3,210,000	Nov..	1897	.10
21	Centennial, c	Mich.	2,500,000	100,000	25	460,000	Mar..	1898	3.00
22	Central Eureka, g	Cal...	4,000,000	400,000	10	135,942	Sept..	1899	.03
23	Challenge Cons,s.g	Nev..	150,000	50,000	3	438,000	Aug..	1899	.10
24	Chollar, g. s	Nev..	336,000	112,000	3	2,076 600	Aug..	1899	.15
25	Confidence, g. s	Nev..	74,880	24,960	3	545,118	May..	1899	.20
26	Con., Cal. & Va	Nev..	540,000	216,000	2½	784,000	Oct..	1899	.25
27	Cons. Imperial, g. s	Nev..	500,000	500,000	1	2,251,000	July..	1899	.01
28	Con. New York	Nev..	100,000	100,000	1	160,500	Nov..	1898	.03
29	Crown Point, g. s	Nev..	300,000	100,000	3	2,980,000	May..	1899	.10
30	Dalton, s. l	Utah.	2,500,000	500,000	5	58,750	April.	1899	.01
31	Dexter	Nev..	1,000,000	200,000	5	38,000	Apr..	1898	.15
32	Diamond Con	Utah.	1,000,000	200,000	5	8,000	Mar..	1899	.04
33	Eagle, g. s	Cal...	500,000	100,000	5	5,000	Dec..	1896	.05
34	Eagle, g. s	Ore..	1,000,000	100,000	10	6,000	Oct..	1898	.01½
35	Emerald	Utah	300,000	300,000	1	3,000	Oct..	1898	.00½
36	Eureka Cons., g. s. l	Nev..	1,000,000	50,000	20	590,000	Oct..	1899	.10
37	Eureka Con. Drift,g.	Cal...	500,000	500,000	1	182,500	Sept..	1899	.00½
38	Exchequer, g. s	Nev..	1,000,000	100,000	1	1,020,000	Dec..	1897	.05
39	Florence	Utah.	1,000,000	200,000	5	1,000	June.	1899	.00¼
40	Four Aces	Utah.	250,000	250,000	1	5,000	Mar..	1898	.01
41	Galena	Utah.	1,000,000	100,000	10	10,000	Oct..	1898	.10
42	Geyser, s. l	Colo..	5,000,000	500,000	10	1,225,000	July..	1899	.10
43	Gold Belt, g. s	Utah.	500,000	500,000	1	3,012	July..	1896	.00½
44	Gold Coin	Colo..	1,000,000	200,000	5	10,000	May..	1899	.05
45	Golden Eagle, g	Nev..	400,000	400,000	1	4,000	April.	1899	.01
46	Golden Fleece Grav. g	Cal...	130,000	130	1000	56,260	Mar..	1897	2.00
47	Gold & Silver Carb	Utah.	500,000	500,000	1	2,500	Mar..	1899	.00½
48	Gould & Curry	Nev..	324,000	108,000	5	4,641,350	Oct..	1899	.15
49	Granite Hill, g. s	Cal...	500,000	100,000	5	124,000	June.	1899	.03
50	Great Eastern, g	Utah.	1,500,000	300,000	5	6,500	July..	1899	.00½
51	Great Western, q	Cal...	5,000,000	50,000	100	75,520	May..	1899	.15
52	Hale & Norcross, g.s.g	Nev..	11,200,000	112,000	100	5,716,280	May..	1899	.10
53	Head Center Con., s.g	Ariz.	5,000,000	200,000	25	25,125	Mar..	1899	.20
54	Horse Shoe Bar Cons.	Cal...	6,000,000	60,000	100	85,800	Jan..	1899	.05
55	Joe Bowers, Ext.gcls.	Utah.	112,000	450,000	¼	9,000	July..	1899	.01
56	Julia Con	Nev..	110,000	110,000	1	1,498,800	Jan..	1899	.03
57	Jupiter, g	Cal...	2,000,000	20,000	100	80,000	Feb..	1898	.20
58	Justice, g. s. c	Nev..	210,000	105,000	2	3,662,500	Aug..	1899	.10
59	Kentuck	Utah.	600,000	300,000	2	30,000	Aug..	1898	.10
60	Kentuck Cons., s	Nev..	105,000	105,000	1	125,300	June.	1898	.05
61	Lacrosse, g	Colo..	1,000,000	100,000	10	*			
62	Little Pittsburg	Utah.	2,000,000	400,000	5	21,000	June.	1899	.00¾
63	Lower Mammoth	Utah.	150,000	150,000	1	22,500	June.	1899	.05
64	Lucky Bill	Utah.	300,000	120,000	2.50	56,400	June.	1898	.01½
65	Marguerite, g	Cal...	500,000	50,000	10	85,000	Aug..	1899	.10
66	Marina Marsicano, g	Cal...	1,000,000	100,000	10	49,360	June.	1899	.05
67	May Day	Utah.	100,000	400,000	¼	4,000	Jan..	1899	.00½
68	Mayday, g. s	Cal ..	50,000	50,000	1	10,000	July..	1899	.10
69	Mayflower, g	Cal...	1,200,000	60,000	20	6,000	Sept..	1898	.05
70	Merced, g	Cal...	2,250,000	150,000	15	200,000	July..	1896	2.00
71	Meteor, s. l	Utah.	600,000	300,000	2	9,734	Sept..	1899	.01
72	Mexican, g. s	Nev..	302,400	100,800	3	2,268,800	June.	1899	.10
73	Montreal	Utah.	2,500,000	250,000	10	30,625	April.	1899	.05
74	Mt. Diablo s	Nev..	5,000,000	50,000	100	150,000	Dec..	1898	.10
75	Morning Star, s	Nev..	1,500,000	150,000	10	32,500	Dec..	1898	.00½
76	Nashville, g	Cal ..	115,000	11,500	10	2,000	Sept..	1898	.17
77	North Banner, g. s	Cal...	1,000,000	100,000	10	21,794	Oct..	1896	.02
78	North Belle Isle, s	Nev..	10,000,000	100,000	100	523,074	July..	1896	.10
79	No.Gould & Curry	Nev..	100,000	100,000	1	375,000	Dec..	1898	.10
80	Northern Light, g	Utah.	2,000,000	400,000	5	80,000	July..	1898	.10
81	Occidental Cons g s	Nev..	300,000	100,000	3	514,179	Sept..	1899	.05
82	Ophir, g. s	Nev..	324,000	108,000	3	4,635,968	Aug..	1899	.15
83	Opohonga	Utah.	200,000	100,000	2	1,500	June.	1898	.01
84	Oro Cache, g. s	S. D..	1,250,000	250,000	5	6,250	July..	1893	.00½
85	Osceola, g	Cal ..	10,000,000	100,000	100	10,924	Sept..	1898	.01
86	Overman, g. s	Nev..	230,400	115,200	2	4,141,110	Sept..	1899	.05
87	Peer, s	Ariz.	10,000,000	100,000	100	215,000	July..	1894	.05
88	Peerless, s	Nev..	10,000,000	100,000	100	410,000	July..	1894	.05
89	Pine Hill, g	Cal ..	1,000,000	100,000	10	30,000	July..	1897	.05
90	Potosi, g. s	Nev..	336,000	112,000	3	2,185,200	Sept..	1899	.15
91	Powning	Cal...	750,000	75,000	10	2,800	Aug..	1899	.01
92	Red Mountain, s	Colo..	300,000	60,000	5	22,500	Mar..	1891	.12½
93	Rescue, g	Nev..	100,000	10,000	10	5,500	Feb..	1899	.05
94	Reward, g	Cal...	64,000	64,000	1	63,680	Nov..	1898	.02
95	Ridge, c	Mich.	500,000	20,000	25	239,939	Feb..	1897	1.00
96	Savage, g. s	Nev..	280,000	112,000	2½	7,321,000	Sept..	1899	.10
97	Scorpion,s	Nev..	100,000	100,000	1	445,000	Dec..	1897	.05
98	Seg. Belcher & M g s	Nev..	200,000	100,000	2	373,000	June.	1899	.05
99	Sevier, g. s	Utah.	1,250,000	250,000	5	50,000	April.	1897	.04
100	Shower Con	Utah.	2,000,000	400,000	5	8,000	Aug..	1899	.02
101	Sierra-Nevada, g. s	Nev..	300,000	100,000	3	6,721,910	Aug..	1899	.15
102	Silver Hill, s	Nev..	108,000	108,000	1	2,220,200	May	1898	.05
103	Silver King, s	Ariz.	10,000,000	100,000	100	490,000	Aug..	1899	.25
104	Silver Queen, c	Ariz.	5,000,000	200,000	25	*			
105	Silver State, g	Colo.	700,000	700,000	1	*			
106	Silver State, s. g. l	Utah.	100,000	100,000	1	1,000	Sept..	1897	.00½
107	Siskiyou Con., s	Cal ..	2,000,000	200,000	10	46,000	April.	1898	.01
108	Snow Flake	Utah.	500,000	100,000	5	51,000	July..	1899	.02
109	South Fork Con	Utah.	50,000	50,000	1	5,000	Mar..	1898	.01
110	South Side	Mich.	1,000,000	40,000	25	4,000	Jan..	1899	.10
111	Star, g. s	Utah.	1,000,000	200,000	5	7,000	Feb..	1899	.03
112	Success	Utah.	30,000	300,000	0.10	9,750	Oct..	1899	.01
113	Sunbeam Cons	Utah.	250,000	250,000	1	73,125	Oct..	1899	.10
114	Tecumseh, c	Mich.	1,000,000	40,000	25	40,000	July..	1897	1.00
115	Temonj, g	Colo..	1,000,000	1,000,000	1				
116	Tetro	Utah.	300,000	300,000	1	30,000	Sept..	1899	.01
117	Triumph	Utah.	1,000,000	100,000	10	1,000	April.	1899	.01
118	Union Cons., g. s	Nev..	250,000	100,000	2½	2,648,000	Sept..	1899	.15
119	Utah Cons., s	Nev..	100,000	100,000	1	485,000	Sept..	1899	.05
120	Valeo	Utah.	200,000	200,000	1	10,000	May..	1899	.05
121	Victory, g. s	S. D..	1,250,000	250,000	5	2,625	Nov..	1899	.00½
122	Watt Blue Gravel, g	Cal...	1,100,000	100,000	10	58,000	May..	1899	.03
123	Work, g	Colo..	1,250,000	1,250,000	1				
124	Yankee Girl	Utah.	250,000	250,000	1	5,000	April.	1899	.02
125	Yellow Jacket, g.s.	Nev..	360,000	120,000	3	5,305,000	April.	1899	.15
126	Yellow Jacket	Utah.	300,000	300,000	1	1,500	Dec..	1897	.00½

G., Gold. S., Silver. L., Lead. C., Copper. B., Borax. * Non-assessable. This table is corrected up to Sept. 25 Correspondents are requested to forward changes or additions.

CHEMICALS, MINERALS, RARE ELEMENTS, ETC.—CURRENT PRICES.

	Cust. Meas.	Price.
Abrasives—		
Carborundum, f.o.b. Niagara Falls grains..	lb.	$0.10
Powd., F. FF. FFF..	"	.08
Minute No. 1.....	"	.15
No. 15.....	"	1.00
Corundum, N. C.....	"	.07@.10
Chester.....	"	.04½@.05
Emery, Turkish flour...	"	.03
Grains.....	"	.05
Naxos flour.....	"	.03
Grains.....	"	.05
Chester flour.....	"	.03
Grains.....	"	.05
Peekskill flour.....	"	.01¾
Grains.....	"	.02½
Crude, Kuluk, best...lg. ton		18.50
Levant, " ... "		22.00
Naxos (Greek) best "		26.00
Pumice Stone, Am. powd.	lb.	.01½@.02
Italian, powdered....	"	.01¼
Lump, per quality....	"	.04@.40
Rottenstone, ground....	"	.02½@.03
Lump, per quality....	"	.05@.14
Rouge.....	"	.17@.30
Tripoli, prepared.....sh. ton.		20.00
Acids— Acetic, 30% pure.	100 lbs.	2.75@4.00
30% ch. pure.....	"	6.00@8.00
80% pure.....	"	7.50@9.50
Benzoic, English.....	oz.	.09@.09½
German.....	lb.	.46@.47
Boracic, pure cryst....	"	.11
Powdered.....	"	.11½@.11¾
Carbolic, cryst. in drums	"	.16
Carbonic, liquid.....	"	.15
Chromic, crude.....	"	.23
Chem. pure.....	"	.50
Absol. ch. pure.....	"	1.75
Hydrochloric, ch. pure.	"	.08
Hydrofluoric, 30%.....	"	.03@.04½
48%.....	"	.05@.06
Best.....		.25
Nitric, chem. pure.....	"	.10
Sulphuric, 98%.....	"	.02
Chem. pure.....	"	.07
Tartaric, cryst.....	"	.32
Powder.....	"	.32½
Alcohol—Grain.....	gal.	2.42@2.44
Refined wood, 95@97%	"	.80@.85
Purified.....	"	1.20@1.55
Alum—Lump.....100 lbs.		1.75
Ground.....	"	1.85
Chrome, com'l.....	"	3.50
Aluminum—		
Nitrate.....	lb.	1.50
Oxide, com'l, common..	"	.06½
Best.....	"	.20
Pure.....	"	.80
Hydrated.....	"	.05
Sulphate, pure.....	"	.02
Com'l.....	"	1.50
Ammonia—Aqua, 16° ..	"	.04
18°.....	"	.04½@.05½
20°.....	"	.05@.06
26°.....	"	.07@.08
Ammonium—Bromide, p'r	"	.52@.53
Carbonate lumps.....	"	.08¼@.08½
Powdered.....	"	.09¼@.09¾
Muriate, gran., white..	"	.06¾
Gran. ch. p.....	"	.09½
Lump.....	"	.09½
Gray.....	"	.06¾
Nitrate, white, pure (99%)	"	.10½
Phosphate, com'l.....	"	.12@.15
Chem. pure.....	"	.60
Antimony—Glass	"	.30@.40
Needle, lump.....	"	.05½@.06
Powdered, ordinary..	"	.05¾
Best.....	"	.08½
Oxide, com'l white, 95%.	"	.09½
Com'l white, 99%.....	"	.10½
Com'l gray.....	"	.07@.08
Sulphuret, com'l.....	"	.16
Arsenic—White.....	"	.04¾@.05¼
Red.....	"	.07¾@.08½
Asphaltum—		
Ventura, Cal.....sh. ton		32.00
Cuban, refined.....	lb.	.04½
Common.....	"	.02
Egyptian, refined.....	"	.06½
Trinidad, refined.....	"	.01½
San Valentino .....lg. ton		15.00
Gilsonite, Utah, ordinary	lb.	.03¼
Select.....	"	.03¾
Barium—Carbonate, Lump, 80@90% ....sh. ton		25.00@27.50
92@98%.....	"	26.00@29.00
Powdered, 80@90%...	lb.	.01¾@.02
Chloride, com'l.....	"	.02¼
Chem. pure cryst	"	.05
Nitrate, powdered	"	.05¾
Oxide, com'l, hyd.cryst	"	.18@.22
Hydrated, pure cryst.	"	.25
Pure, powd.....	"	.27
Sulphate.....	"	.01
Barytes—Crude, No. 1..sh. ton		9.00@10.00
No. 2.....	"	8.00@8.25
No. 3.....	"	7.75@8.00
Prime White.....	"	18.00@20.00
Floated.....	"	19.00@20.00
Bauxite—Ga. & Ala. f.o.b. cars, first grade.....lg. ton		5.00
Second grade.....	"	3.75
Benzole—90%.....	gal.	1.00@1.10
Bismuth—Oxide, hydr..	lb	2.25@2.56
Subnitrate cryst.....	oz.	.09@.10
Bitumen, "B".....	lb.	.03½
"A".....	"	.05
Bone Ash.....	"	03¾@.03½
Borax—Cryst. and pow'd	"	.07@.07¼
Calcined.....	"	.23
Bromine—Bulk.....	"	.45
Cadmium—Metallic.....	"	1.50@2.00
Sulphide.....	"	2.00@3.00
Sulphate.....	"	2.00@2.50
Carbide, in ton lots, f. o. b. Niagara Falls, N.Y.	lb.	.03@.04

	Cust. Meas.	Price.
Calcium—		
Acetate, pure white.....100 lbs.		$1.00
Gray.....	"	1.35@1.40
Brown.....	"	.90@.95
Carbonate, ppt.....	lb.	.05
Chloride, com'l.....100 lbs.		.95
Best.....	"	1.90
Sulphite.....	lb.	.05
Cement—		
Portland, Am., 400 lbs..	bbl.	1.50@2.00
Foreign.....	"	1.75@2.50
"Rosendale," 300 lbs...	"	.90
Sand cement, 400 lbs...	"	1.55@1.95
Slag cement, imported.	"	1.65
Ceresine—		
Orange and Yellow.....	lb.	.11
White.....	"	.18
Chalk—Lump, bulk.....sh. ton		2.15@2.25
Precipitated.....	lb.	.04@.04½
French..... .....100 lbs.		.30@.35
Chlorine—Liquid.....	lb.	.30
Water.....	"	.15
Chrome Ore—		
(50% chrome) ex ship....lg. ton		20.00@21.00
Sand.....	"	35.00
Clay, China—Am. com., ex-dock, N. Y.....lg. ton		7.70
Am. best, ex-dock, N. Y.	"	8.70
English, common.....	"	11.00
Best grade.....	"	16.00
Fire, ground, f.o.b. Jersey City, N. J.... ...sh. ton		4.00@5.00
Slip Clay.....		6.00
Cobalt—Carbonate.....	lb.	1.50
Nitrate	"	1.30
Oxide—Black.....	"	2.00
Gray.....	"	2.50
Smalt, blue ordinary	"	.20
Best.....	"	.30
Chem. pure.....	"	5.00
Copperas.....100 lbs.		.62½
Copper—		
Carbonate.....	lb.	.18@.20
Chloride.....	"	.25
Nitrate, crystals.....	"	.35
Oxide.....	"	.19@.20
Cream of Tarter—crys.	"	.23½
Granulated.....	"	.24
Powdered	"	.24
Cryolite.....	"	.06½
Explosives—		
Blasting powder, A.....	"	.10½
Blasting powder, B.....	"	-05@.05½
"Rackarock," A.....	"	.25
"Rackarock," B.....	"	.18
Judson R.R. powder....	"	.10
Dynamite, (40% nitro-glycerine).....	"	.15
(50% nitro-glycerine)..	"	.17
(60% nitro-glycerine)..	"	.19
(75% nitro-glycerine)..	"	.23
Glycerine for nitro (32 2-10° Be.).....	"	.16½
Nitro-Benzole.....	"	.14
Feldspar—Ground.....sh. ton		6.50@7.75
Flint—(See Silica).		
Fluorspar, f. o. b. mines—		
Am. lump, 1st grade...	"	7.50
2d gr.....	"	6.50
Gravel.....	"	6.00
Crushed.....	"	5.75
Ground, ex. fine	"	19.00
2d gr.....	"	15.00
Foreign, lump.....	"	8.00@12.00
Ground.....	"	11.50@14.00
Fuller's Earth—Lump.100 lbs.		.75
Powdered.....	"	.85
Ganister Rock.....lg. ton.		6.50
Graphite—(See Plumbago).		
Gypsum—		
Am. gr'd (terra alba)...sh. ton		8.00
Fertilizer.....	"	7.00
Rock.....lg. ton		4.00
English and French.....	"	14.00@16.00
Infusorial Earth—Ground, American, best.....	"	20.00
French.....	"	37.50
German.....	"	40.00
Iodine—Crude.....100 lbs.		2.45
Resublimed.....	"	2.85
Iron—Chromate.....	lb.	.03@.10
Muriate	"	.05
Nitrate, com'l.....	"	.01¼@.01¾
True.....	"	.04
Oxide, pure copperas col	"	.05@.10
Purple-brown.....	"	.02
Veneian red.....	"	01@.01½
Scale	"	.01@.03
Kaolin—(See Clay, China).		
Kryolith—(See Cryolite.)		
Lead—Acetate, white ...	lb.	.06½@.07½
Com'l, broken.....	"	.06@.07
White, gran.....	"	.07½@.08
Nitrate, com'l.....	"	.00¾@.06¾
Chem. pure.....	"	.35
Lime—Bldg., ab. 250 lbs	bbl.	.90
Finishing.....	"	1.00
Magnesite—		
Crude, lump (95%) Greece lg. ton		7.25
German (85%).....	"	12.00
Calcined, 600° C. (Greece)	"	15.00
1,000° C. (Greece)	"	18.50
3,000° F. (Greece)..	"	21.00
Domestic, soft.....sh. ton		12.00@15.00
Bricks, all magnesite.. M.		185 00
Magnesite and chrome. "		226.00
Magnesium—		
Metallic, ingots (Ger)..	kg.	5.95@6.90
Powdered (Ger.).....	"	6.19
Ribbon or wire (Ger.).	"	10.00
Carbonate, light, fine pd	lb.	.03¾@.04
Blocks.....	"	06@.09
Chloride, com'l:... ...	"	.01¾
Fused.....	"	.20
Nitrate.....	"	.60
Manganese—Crude, pow'd 70@75% binoxide....	"	.01¼@.01½

	Cust. Meas.	Price.
Manganese—		
75@85% binoxide....	lb.	.01½@.02½
85@90% binoxide....	"	.02½@.03¼
90@95% binoxide....	"	.02¾@.05½
Carbonate.....	"	.16@.20
Chloride.....	"	.04
Ore, 50%.....	unit	.22@.22½
Marble—Flour .....sh. ton		5.50@8.00
Mercury—		
Bichloride	lb.	.59@.60
Bisulphate.....	"	.41
Mica—N. Y. gr'nd, coarse	"	.05
Fine.....	"	.08
Sheets, 1½x3 in.....	"	.60
8x10 in.....	"	13.00
Mineral Wool—		
Slag, ordinary.....100 lbs.		.90
Selected.....	"	1.40
Extra.....	"	3.00
Rock, ordinary.....sh. ton		32.00
Selected.....100 lbs.		2.50
Extra	"	5.00
Monazite—92%.....sh. ton		140.00
Nickel—Oxide, bl'k No. 1	lb.	1.00
Black No. 2.....	"	.60
Green, No. 1.....	"	1.00
No. 2.....	"	.60
Oils—		
Black, reduced 29 gr.:		
25@30 cold test.....	gal.	.10½@.11
15, cold test.....	"	.11½@.12
Zero.....	"	.12½@.13½
Summer.....	"	.10@.10½
Cylinder, dark steam ref	"	.09½@.14½
Dark filtered.....	"	.12½@.17½
Light filtered.....	"	.14½@.17
Extra cold test.....	"	.22½@.36¼
Gasolene, 86° @90°.....	"	.16@.18
Neutral filtered, lemon, 33@34 gr.....	"	.14½@.20
White, 33@34 gr.....	"	.22½@.24½
Wool grade, 32 gr....	"	.12½@.15½
Naphtha, 62°.....	"	.12¾
Deodorized, 76°.....	"	.13¾
Linseed, domestic raw..	"	.44
Boiled	"	.46
Calcutta, raw.....	"	.65
Graphite, lubricating, Am. dry.....	lb.	.10
In oil.....	"	.12
Axle grease.....	"	.08½@.10
Wood grease.....	"	.05@.06
Ozokerite—Foreign	"	.08
Paints and Colors—		
Benzine, Sumatra.....	"	.35@.40
Marbled.....	"	.27@.28
Chrome green, common	"	.05@.06
Extra.....	"	.12@.15
Chem. pure.....	"	.19@.25
Yellow, common.....	"	.10
Best.....	"	.25
Silica Graphite, thick..	"	.12
Thinned.....	gal.	1.15
Lampblack—Com'l.....	lb.	.03@.05
Refined.....	"	.08@.10
Calcined.....	"	.12@.20
Fine spirit.....	"	.20@.35
Litharge, Am. powd..	"	.06@.06½
English flake.....	"	.08@.08½
Metallic, brown.....sh. ton		16.00@20.00
Red.....	"	16.00@20.00
Ocher, Am. common....	"	9.25@10.00
Best.....	"	21.25@25.00
Dutch, washed.....	lb.	.04¾@.05
French, washed.....	"	.01¼@.02½
Orange mineral, Am...	"	.07¾@.08
Foreign, as to make..	"	.09@.10½
Paris green, pure.....	"	.11@.12
Red lead, American.....	"	.06@.06½
Foreign.....	"	.08@.08¼
Shellac, "D. C.".....	"	.26
Native.....	"	16
Turpentine, spirits.....	gal.	.44½@.45
Ultramarine, best.....	lb.	.25
Vermilion, Amer. lead..	"	.10
Quicksilver.....	"	.64@.65
Chinese	"	.80@.90
English, imported....	"	.67
White lead, Am., dry...	"	.05¼@.05¾
In oil.....	"	.06@.06½
English, in oil.....	"	.07½@.08¼
Whiting, common.....100 lbs.		.45
Gilders.....	"	.50
Zinc white, Am..ex.dry	lb.	.05¾@.06
American, red seal...	"	.07½@.08
Green seal.....	"	.08@.08½
Foreign, red seal, dry	"	.07¾@.08¾
Green seal, dry.....	"	.08¾@.09¾
Foreign, in oil.....	"	.10½@.11¾
Plumbago—		
Am. lump, f. o. b. Providence, R. I.....sh. ton		8.00
Am. pulv., f. o. b. Providence, R. I.....	"	30.00
German, lump.....100 lbs.		1.50
Pulverized.....	"	2.00
Ceylon, pulv. common.	lb	.04½
Best.....	"	.06@.10
Italian, pulv.....	"	.01¼
Potash—Caustic, ord...	"	.05
Elect. (90%).....	"	.06@.07
Potassium—		
Metallic, in balls (Ger)..	kg.	17.85
Bicarbonate cryst.....	lb.	.08½
Powdered or gran....	"	.12
Bichromate.....	"	.09¾
Bromide.....	"	.46@.47
Carbonate.....	"	.02¾@.03½
Chromate	"	.35
Cyanide (98@99%).....	"	.28@.29
Ferro-cyanide	"	.19@.20
Iodide	"	2.15
Permanganate, pure cr.	"	.14@.15
Prussiate, yellow.....	"	.19¼@.19½
Red.....	"	.37@.38
Silicate.....	"	.06
Sulphide, com'l.....	"	.10

	Cust. Meas.	Price.
Quartz—(See Silica).		
Rosin—Common.....	bbl.	$1.25
Best.....	"	4.10
Salt—N.Y. com. fine abt. 380 lbs.....	bbl.	.70
N. Y. agricultural.....sh. ton		1.50
N. Y. coarse.....	"	2.30
N. Y. dairy and table...	"	2.90
Saltpeter—Crude.....100 lbs.		3.50
Refined.....	"	4.25@5.50
Samarskite.....	lb.	1.00
Silica—Best foreign....lg. ton		10.00@11.00
Ground quartz, ord....sh. ton		6.00@8.00
Best.....	"	12.00
Lump quartz.....	"	2.50@4.00
Fire bricks (Blue Welch) M.		35.00
Silver—Chloride.....	oz.	.65
Nitrate.....	"	.41
Oxide.....	"	.85@1.10
Sodium—Metallic.....	lb.	.07¾
Acetate, com'l.....	"	.03¾@.04
Bichromate.....	"	.07
Bromide	"	.49@.50
Chlorate, com'l.....	"	.09¾@.10
Hyposulphite.....100 lbs.		1.60@1.70
Nitrite.....	lb.	.07½@.07¾
Peroxide.....	"	.45
Phosphate.....	"	.03
Triphosphate	"	.04
Silicate, conc.....	"	.01@.01½
Sulphate, gran., purl'd.	"	.03
Sulphide.....100 lbs.		1.75
Sulphite.....	lb.	.02½
Tungstate, com'l	"	.35
Pure.....	"	.50
Strontium—Nitrate	"	.07½
Sulphur—Roll.....100 lbs.		1.70
Flour.....	"	1.80@1.85
Flowers, sublimed...	"	2.00
Talc—N. C. No. 1.....sh. ton		15.00@15.50
No. 2.....	"	10.00@12.00
N. Y., Fibrous.....	"	8.00@9.00
French. .....100 lbs.		1.25@1.50
Italian,.....	"	1.50@2.00
Tar—Coal.....	bbl.	3.00
Tin—Chloride	lb.	.13@.15
Crystals.....	"	.24@.26
Muriate, com'l.	"	.09
Oxide, white, ch. pure..	"	.48@.50
Uranium—Oxide.....	"	1.80@3.00
Zinc—Metallic, ch. pure..	"	.09@.10
Carbonate.....	"	.15
Chloride	"	.06@.08
Dust.....	"	.07@.07¼
Sulphate.....	"	.02½

THE RARE ELEMENTS.

Prices given are at makers' works in Germany, unless otherwise noted.

	Cust. Meas.	Price.
Barium—Amalgam.....	grm.	$1.19
Electrol.....	"	5 71
Beryllium—Powder.....	"	5.95
Crystals.....	"	9.04
Nitrate (N Y.).....	oz.	2.50
Boron—Amorphous, pure	grm.	.19
Crystals, pure.....	"	1.43
Nitrate (N. Y.).....	lb.	1.50
Calcium—Electrol.....	"	4.28
Cerium—Fused.....grm.		2.02
Nitrate (N. Y.).....	lb.	21.00
Chromium—Fused	kg.	5.95
Pure powder 95%.....	"	1.79
Chem. pure cryst.....	grm.	.21
Cobalt—(98@99%).....	kg.	5.35@5.71
Pure.....		30.94
Didymium—Powder.....	grm.	3.81
Nitrate (N. Y.).....	oz.	4.00
Erbium	grm.	3.09
Nitrate (N. Y.).....	oz.	3.00
Gallium	grain	9.52
Germanium—Powder....	grm.	33.32
Fused.....	"	35.70
Glucinum—Powder.....	"	5.95
Crystals.....	"	9.04
Nitrate (N. Y.).....	oz.	2.50
Indium.....	grm.	4.05
Iridium—.....	"	2.38
Lanthanum—Powder....	"	4.28
Electrol, in balls	"	9.04
Nitrate (N. Y.).....	oz.	3.50
Lithium.....	grm.	2.38
Nitrate (N. Y.).....	oz.	.60
Molybdenum—Powder...	kg.	2.62
Fused, electrol 95%.....100 grms.		15.47
Niobium.....	grm.	3.81
Osmium.....	"	.95
Palladium.....	"	.95
Rhodium.....	"	2.87
Rubidium—Pure.....	"	4.76
Ruthenium—Pure powd	"	2.38
Selenium—Com'l powder	kg	30.94
Sublimed powder.....	"	40.46
Sticks.....		33.32
Silicium—Amorphous...100 grms.		2.87
Crystals, pure....	"	5.95
Strontium—Electrol	grm.	6.19
Tantalium—Pure.....	"	3.57
Tellurium—Ch. p. sticks.100 grms.		11.90
Powder.....		9.52
Thallium	kg.	23.80
Thorium—Metallic.....grm.		7.85
Nitrate 49@50% (N. Y.)..	lb.	5.00@5.50
Titanium.....	grm.	.71
Uranium.....	"	.48
Nitrate (N. Y.).....	oz.	.25
Vanadium—Fused.....	grm.	1.19
Wolfram—Fused.....100 grms.		23.80
Powder, 95@98%.....	kg.	1.90
Chem. pure.....	"	6.42
Yttrium.....	grm.	3.33
Nitrate (N. Y.).....	oz.	4.00
Zirconium—Com'l.....	kg.	119.00
Pure.....	grm.	.71
Nitrate (N. Y.).....	oz.	1.00

Note.—These quotations are for wholesale lots in New York unless otherwise specified, and are generally subject to the usual trade discounts. This table is revised up to Oct. 26th. Readers of the Engineering and Mining Journal are requested to report any corrections needed, or to suggest additions which they may consider advisable. See also Market Review of Chemicals and Minerals.